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CANADIAN GEOGRAPHICAL JOURNAL

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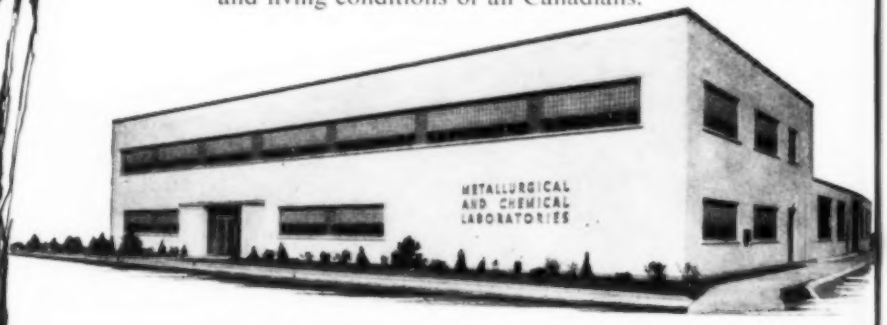

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A lovely bit of fall scenery along the old Goulals Bay road which leads into Sault St. Marie from the north. R.N.Smillie

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CANADIAN GEOGRAPHICAL JOURNAL

Editor - WILLIAM J. MEGILL

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OCTOBER 1960 ✦ VOLUME LXI ✦ NUMBER 4

COVER SUBJECT:—*Blue Geese and Lesser Snow Geese in flight near Meadows, Manitoba.* A. Haak

✦

The articles in this Journal are indexed in the *International Index to Periodicals* and in the *Canadian Index*.

The British standard of spelling is adopted substantially as used by the Government of Canada and taught in most Canadian schools, the precise authority being the Concise Oxford Dictionary, fourth edition, 1951.

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Damage done by uncontrolled tide water is shown here. The drainage channel, foreground, has been enlarged, resulting in considerable loss of very fertile marsh land. Note the salt water mark on the hay barn, showing the peak height to which tides have risen. Also note the damage to the barn caused by cakes of ice scraping along its boards.

Taming The Tides of Fundy

by PETER HENDRY

Photographs by Maritime Marshland Rehabilitation Administration except where credited

SOME TIME before this year is over the end of a remarkable chapter will be written to one of the least dramatized engineering stories on this or any other continent. Quite probably without any of the fanfare to compare with the driving of a last spike or the cutting of a ceremonial ribbon, a concerted ten-year program to bring under effective control the highest tidal bore in the world will, for all practical purposes, be completed.

In the past decade, engineers of the Maritime Marshland Rehabilitation Administration have thrown up a modern network of dikes and drainage outlets around the tide-swept upper reaches of the Bay of Fundy. The result has been the reclamation or protection of some 80,000 acres of what is potentially the most fertile farmland in the Maritime provinces — an area where fertile farmland is not in over-supply.

To some 3,300 marshland farmers in Nova Scotia and New Brunswick the work accomplished under the direction of the M.M.R.A. will spell new opportunities for more profitable, better balanced operations — opportunities which, under present-day circumstances, few would have been able to achieve by themselves. For the region in general, the reclaimed land, properly used, can mean a new impetus in agriculture equal to the upsurge in the general economy over the past decade. While the cost of this work is being "charged" against agriculture, much of the dike installed protects roads, railways and some towns and villages.

Yet the most fascinating thing about this many-faceted program is the link it provides between a three-century-old history and a new age of promise. Since the first white men settled on these shores the tides of Fundy have been a force which shaped the patterns of life and settlement. Immigrations, emigrations, war and depression have come and gone but always the people who remained

Much of the work to repair damaged dikes has to be done during winter months, when trucks and equipment can move more easily over the frozen marsh. Here, at Converse Marsh, West County, New Brunswick, an eroded dike face is being covered with a rock blanket.

found that their first need was to establish some relationship with the sea. The remarkable thing is that even today the modern techniques employed in diking and draining the marshlands betray their origins in a past which goes beyond the first settlements here, back to unrecorded experience on the harsh western coastlines of France.

According to Hannay's *History of Acadia* the earliest records of reclamation in the Bay of Fundy region date back to about 1633 at Port Royal. The settlers brought there and to Le Have at that time by Isaac de Razilly and Charnisay came from Rochelle, Saintonge and Poitou in France, a region of marshes where the sea was kept out by artificial dikes and the land drained through an ingenious system of sluices known as *aboiteaux*.

In the New World these settlers were quick to recognize a similar, if somewhat more com-

The unusually high tides accompanied by gale force winds at John Lusby Marsh, near Amherst, Nova Scotia, in September 1958. Considerable erosion of the dike resulted from the wave action.

plicated, environment. The tidal wave from the Atlantic, pressing against the edge of the continent, undergoes at the mouth of the Bay of Fundy what is described as a "lateral compression". The result is a current which carries up the bay and rushes into its inlets and rivers at velocities as high as ten miles per hour.

This current is characterized by the greatest rise and fall of any tide water in the world, ranging from eleven feet at the mouth to fifty-three feet in the upper reaches. This variation creates a unique relationship between the sea and the fresh water land drainage system which empties into it. At daily low tide, the level of salt water is below the bottom of the fresh water rivers and the run-off water from the uplands is allowed to drain into the sea. At daily high tide the sea rises above the fresh water level and the salt water penetrates for a considerable distance up the river channels.

Wherever projecting headlands or concealed ledges hinder their progress, the swirling waters accumulate a deposit of sandstone eroded from the sides and bottom of the channel. This is dropped as the tidal force is calmed in its ascent of the rivers or as it spreads over adjacent flatlands.

Over a long period of time, beds of silt have been built up above the seasonal low tides and thus remained dry during these periods. Seasonal high tides laid down further deposits until an equilibrium level was reached. The result is an area of salt marsh which is dry during seasonal and annual low tides and flooded during seasonal and annual high tides. Over the centuries this endless action has built up more than 100,000 acres of salt marsh around the horse-shoe-shaped perimeter of the Bay of Fundy.

If we can judge by what happens on marshes still subject to flooding, the first settlers at Port Royal found these lands mainly taken over by a coarse salt grass of little value as pasture or forage. However, it is evident that they saw at once the possibility of protecting the higher marshes by building up earth dikes which excluded the high tides. Early settlers arriving in the Annapolis Valley in 1620 began immediately to enclose small areas in this manner.

These pioneer construction methods were based on using readily available materials and a plentiful supply of hand labour. A typical dike was about five feet high, with an eleven foot base tapering to a one foot wide top. The sides were of sods, carefully cut to fit like bricks. If work was done in the spring, the grasses continued to grow and soon the dike faces were firm enough to withstand considerable wave action.

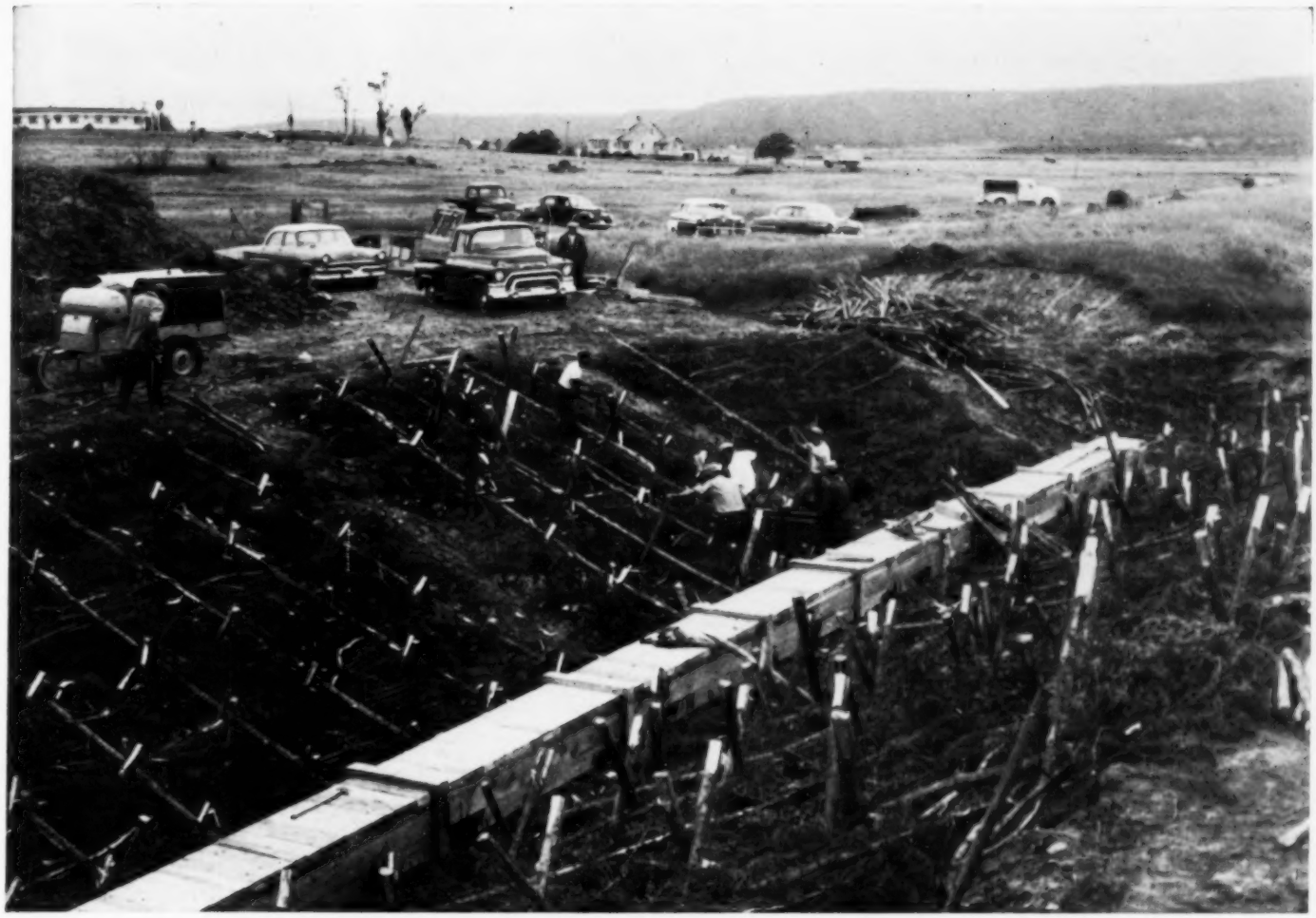
These methods were in fairly general use until the past twenty years and men trained to build such dikes and drainage outlets had developed their technique until it was a work of art.

From Port Royal, settlements spread gradually to Grand Pre, Shepody, Aulac and marshlands along the Petitcodiac and Memramcook Rivers. In his "History of King's County", A. W. H. Eaton noted that, "In 1714 the Acadians had diked of the Grande Pre marsh some 2,100 acres." Such efforts apparently continued until the expulsion of the Acadians four decades later.

What was probably an exaggerated estimate of the extent of diked marshland was given in 1759, after the British conquest of French Canada, when Governor Charles Lawrence advertised in Boston that 100,000 acres of marshland would be available to new settlers in Acadia. Considering, among other things, that a French raid on the British garrison at Grand Pre thirteen years before had breached the dikes there, it seems likely that Governor Lawrence was more interested in attracting colonists than in establishing a reputation for historical accuracy.

That same year, according to G. F. Herbin in his *History of Grand Pre*, a storm broke some of the dikes and the English were glad to permit a number of the remaining Acadians to take the oath of allegiance so that there would be experienced men to work at rebuilding the dikes.

Over the generations that followed, the English apparently learned from the Acadians the special arts of building dikes and *aboiteaux*. There is evidence that in some sections at least, the English settlers made good progress in surveying marshlands and organizing owners. During most of this period some 75,000 to 80,000 acres, in areas varying from



Aboiteau No. 1 on the Allan River Marsh, Anna County, Nova Scotia, under construction. The sluice has been set on its bed, and brushing of the aboiteau fill is in progress. Brushing, as shown here, is done between every two-foot layer of fill.

25 to 5,000 acres, were protected against salt water flooding.

The writings of John Young, the *Letters of Agricola*, contained many references to early farming on the marshlands of Nova Scotia. He noted early emphasis on wheat and other cereals and later a switch to a wheat-grass rotation. Around 1820, he recorded, some areas were switching exclusively to hay production.

This trend was encouraged in the latter half of the nineteenth century by two factors: an expanding market for hay used by the horsedrawn transport in the growing metropolitan centres of eastern United States, and, less directly, by the growth of the apple industry on upland soils which drew attention away from the cultivation of the marshlands.

A detailed economic survey carried out ten years ago in various marshland areas in both New Brunswick and Nova Scotia produced an interesting gauge of the fluctuations in marshland prosperity — the price of land per acre. Here is what marshland cost per acre in the Annapolis Valley over the past 140 years.

1820	$125
1885	$150-$200
1900-09	$105
1910-19	$ 96
1920-29	$ 98
1930-39	$ 36
1940-49	$ 31

During recent years however, marshland in the Grand Pre area has sold as high as $80 per acre.

Some authorities have linked the high prices in 1885 to the great days of Maritime shipbuilding. But even then, perhaps, the decline in the hay economy had been augured by the re-organization of Maritime commerce which followed Confederation.

Throughout the first half of this century other circumstances arose which led to deterioration in the age-old diking system. One was the loss of hay markets which came with the development of motorized transport. War and the growth of industry brought serious

Aerial view of Harvey Bank prior to the start of work on the Shepody River Dam. The location of the dam is on the near side of the wharf.

Machines at Harvey Bank e inlet c the spoil, forming a low, wide he midd water of the river flows b and and no

shortage of labour, a vital element in the maintenance of the dikes and drainage ditches.

The downward trend in farm prices following World War I brought a reduction of livestock numbers. Less attention was given to the proper use of land; dikes were permitted to deteriorate and considerable areas once well protected went back to the sea.

This was the situation which existed when Canada began to gird her agricultural forces for the production required by the Second World War. In a region where there was a general scarcity of fertile soil, much of the most productive land, long vital to the agricultural economy, was producing nothing but coarse marsh grass. The knowledge and skills needed to protect these soils was the possession of a dwindling few; and the economy of the times made even much of that useless. A delicate balance of power which had existed between man and nature for three centuries had been upset and the relentless tides of Fundy had the upper hand.

The first steps to regain that balance were taken on an emergency basis in 1942 when an agreement was reached whereby the federal government, the province and the landowner would each assume one third of the cost of all repair work on dikes and *aboiteaux*. In the succeeding six years during which this plan operated Ottawa contributed

After the river channel was closed, the tides poured through the gate openings and the by-pass openings. This concentrated flow was carried over the concrete slabs of the spillway. The by-pass had to be closed so that the tide could be completely shut out of the river. This was done by dropping heavy timbers in the steel guides of the by-pass piers. In the picture, the timbers are in place, and the next step will be to fill the area of the by-pass piers completely with rock.

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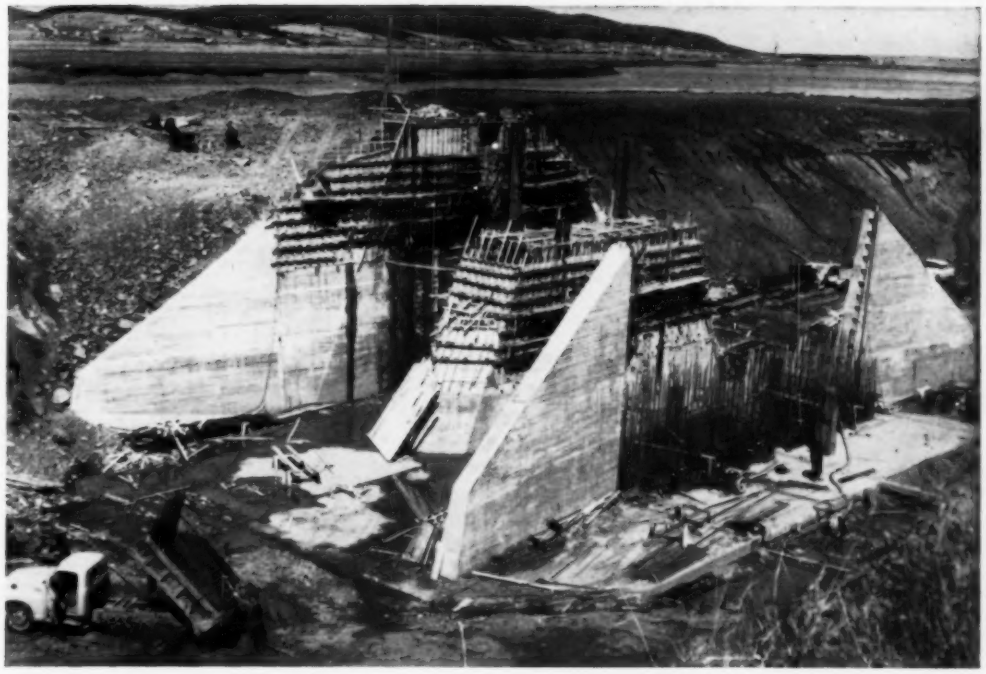

General view of the concrete work in progress at Harvey Bank. The piers shown will later be the permanent gate section of the dam.

roughly $300,000 to the program, indicating that something less than $1,000,000 worth of work was done.

A new era was ushered in in June, 1948, when Parliament passed the Maritime Marshland Rehabilitation Act which permitted the federal Minister of Agriculture to enter into agreements with the provinces of Nova Scotia, New Brunswick and Prince Edward Island with respect to reclamation and development of marshlands. Separate agreements were made with the provinces the following year.

The federal agency established under this legislation, the Maritime Marshland Rehabilitation Administration, was to be responsible for construction or reconstruction of the needed dikes and *aboiteaux* and to provide the necessary surveying and engineering services. The provinces were to construct and maintain the drainage works for protected marshes, to arrange for acquisition of land and rights-of-way needed for protective works, to be responsible for the organization of marsh owners, and to undertake the development of a land use program.

Before any project is undertaken, individual marsh owners must be organized and incorporated as a "Marsh Body". Each project must be approved by an advisory committee consisting of farmers, provincial, and federal representatives before it is pre-

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Aerial view of Harvey Bank after the construction of the dam. The wharf is to the left of the outlet channel from the sluice structure.

(Left) Aerial view of the Great Village Marsh, Colchester County, Nova Scotia. Most of this marsh has been out to sea since the great Saxby tide of 1869. The result of the twice-daily flow of tide is apparent in the erosion of the creeks which were, at one time, small drainage channels. Some remnants of the early dikes are still standing.

(Right) View of the Annapolis River Dam project after completion of the concrete structures. The bridge in the background will be replaced by a rock fill causeway at the narrow point of the river, to the right. Each of the seven by-pass openings is thirty feet wide. The two gates in the permanent section measure twenty-four feet by thirty feet.

sented to the federal minister for final approval.

In May of 1949, the new administration set up headquarters at Amherst, Nova Scotia, with J. S. Parker, who had been conducting water erosion studies at the Dominion Experimental Farm at Swift Current, Saskatchewan, as its director. By the following spring, M.M.R.A. had 47 projects covering an area of more than 19,000 acres underway.

Even in that brief period, however, the small engineering staff which had been gathered was becoming familiar with the knotty problems which had plagued a dozen generations of Maritime dike-builders. The marsh mud of the Bay of Fundy region is a very "weak" soil to work with — its natural water content is sometimes twice the liquid limit. Agitated by machinery, it turns almost to a fluid state, making construction exceedingly difficult.

The first known departure from traditional methods of dike building was during the last war when a large proportion of the protective works on Grand Pre marsh were left in poor condition by high tides and severe storms. Because of the manpower shortage existing then it was decided to try a dragline on the repair job. The results were so successful, both as to the quality of work and cost that when the M.M.R.A. began its program, machine-built dikes became standard practice.

There were some disadvantages: a machine-built dike may wash seriously shortly after construction and require plank or quarried rock facing within a few years. Nor were the old hand skills entirely discounted. On several occasions when an increase in dike height became necessary and machinery was not readily available, a small group of men experienced in the art of dike building were employed. While casual observation of their work did not disclose the secret, it was evident that they were always able to get a satisfactory bond to the existing dike while sods placed by less experienced hands have leaked at the joint, dried and fallen apart.

But though there may have been disadvantages, the use of machinery enabled M.M.R.A. to take a more direct line of defence against the tides than ever was possible for previous generations of dike builders. The modern dikes and *aboiteaux* are placed boldly on the main streams, rather than on the tributaries as formerly, thus greatly reducing construction mileage.

In the past ten years approximately 250 miles of dikes have been constructed or strengthened, some 420 *aboiteaux* have been constructed or reconstructed and about 500 have been eliminated. In all, some $17,000,000 has been expended.

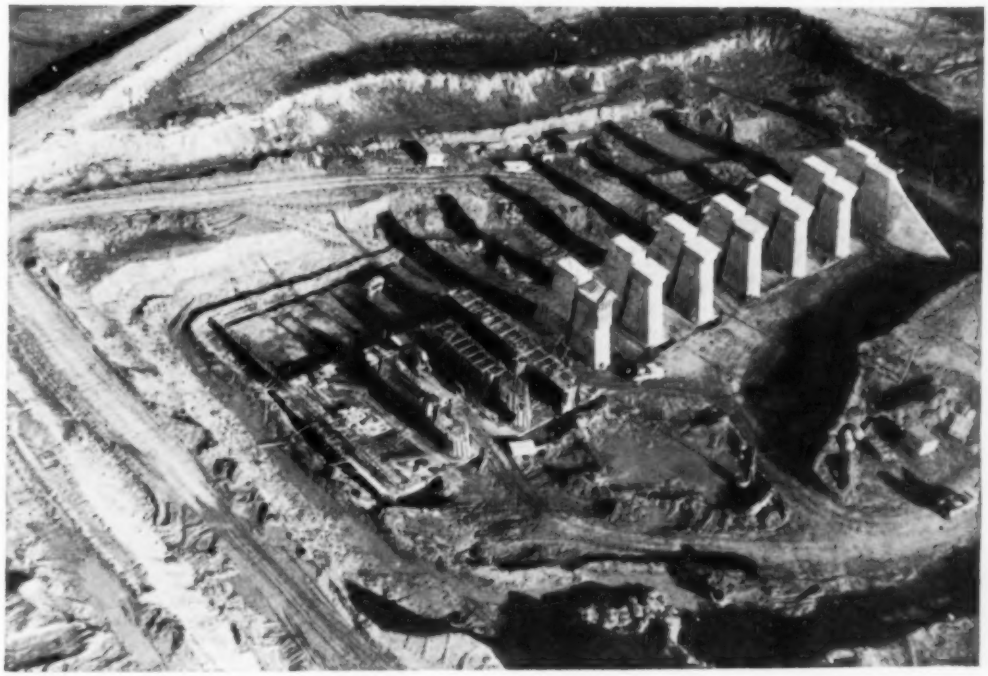
Some of the larger individual projects are quite remarkable. The Shepody River dam, for instance, is believed to operate under the greatest tidal range of any dam in the world — forty feet. However, the largest *aboiteaux* in the network is the Annapolis River dam,

due for completion this summer. A combined dam and highway causeway at Annapolis Royal, this 1,500 foot long, 85 foot high structure will function as an *aboiteaux* to protect some 4,300 acres of potentially valuable marshland above the site.

By the end of this year it is expected that all but a few of the minor projects will be completed. This will pave the way for even fuller attention to the succeeding phase of the program, the emphasis on proper use of newly reclaimed lands.

The importance of this phase can be estimated from the results of a survey made in 1949 before M.M.R.A. construction was properly under way. On the largest marsh, New Brunswick's Tantramar, 17 per cent of the acreage was in coarse, broadleaf grass, ten per cent was out to sea. Of 25,000 acres in the Amherst-Nappan area, 62 per cent was out to sea. Almost a third of the Annapolis River marsh area was in a similar state.

The survey found that many of the farms



Aerial view of the excavation for the sluiceway of the Annapolis River Dam. The completed piers are for by-pass area during closure of the river. The gate section piers are to the left, under construction.

The marshes provide excellent pasturage where proper attention is given to the surface drainage of rain water. Because the Maritime Provinces are not self-sufficient in beef production, increasing use is being made of beef breeds of cattle. Canada Department of Agriculture.

were too small to provide an adequate size of operation. Owners generally found part-time employment off the farm and some farms appeared to exist mainly for the purpose of providing their owners with rural residences. Of nearly 700 farms surveyed only seven per cent exceeded 100 acres in size and most of these were in the beef-conscious Tantramar area.

While many farmers have taken advantage of the reclaimed acreage to increase their production of meat or milk, this small farm problem still persists. Appearing before the Senate Committee on Land Use last year, Nova Scotia's Minister of Agriculture E. D. Haliburton admitted that "there is still a terrific area going to waste" in diked marshland in Cumberland County.

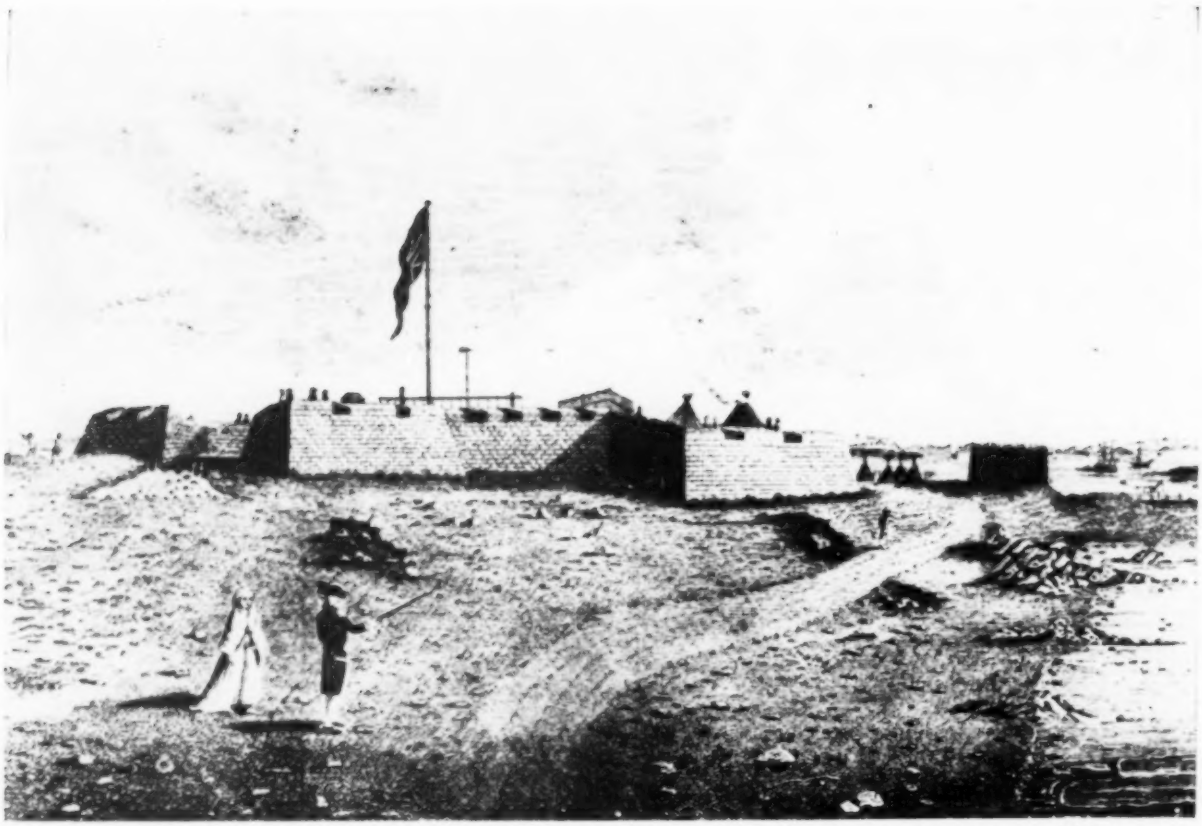
Here, the problem appears to be a social one, as much as an economic one. "It is that the older farmers won't sell," Mr. Haliburton told the committee. "There may be a farmer of say 70 years of age, who was a good farmer when he was young, but he won't sell because his property has a good house on it, and if he sold he would just have to exchange it for a house in town. He would prefer to live on the farm. It takes a long time to get these farms back in circulation once they are tied up."

Quietly, government authorities are trying to point the way. Experiments at the Experimental Farm at Nappan have indicated that an acre of marshland, seeded with the right grasses, limed and well tended can produce as much as 550 pounds of beef in a season — a figure that provides food for thought in a region that still does not supply all its own red meat needs. Community pastures established on both New Brunswick and Nova Scotia marshes are trying to help the small farmer overcome his lack of acreage.

Here lies the future challenge in the marshland program. After the draglines and bulldozers have moved away, extension workers and experimental farm personnel will continue to guide and advise and encourage the marshland owners to see that they gain the utmost benefits possible from the investment in reclamation.

Cutting hay behind a dike. Canada Department of Agriculture.
The deep clay soils of the Bay of Fundy marshes yield heavy crops of hay and grain.

From the "uplands", with their rolling slopes and blocks of spruce forest, the marshes present broad stretches of hay and grain fields with the barns dotted about like pieces on a checker board. Hay is stored in the small barns and hauled off in the winter. Canada Department of Agriculture.



Reproduction of an original sketch made by Samuel Hearne, 1777, showing Fort Prince of Wales from the northwest. Public Archives of Canada

The Preposterous Fortress of the North

The Story of Fort Prince of Wales

by J. A. DAVIDSON

Photographs by Clifton Lewis except where credited

SAMUEL Hearne, the governor of Fort Prince of Wales, the great stone fortress of the Hudson's Bay Company at the mouth of the Churchill River in what is now the far north of Manitoba, was completely surprised that 8th day of August in 1782 when he looked over the ramparts and saw three ships flying the flag of France begin to take hostile action. The French had not ventured into Hudson Bay in over forty years, and Hearne apparently had not heard that France and Britain were at war again in that part of the world.

The French admiral, Jean-Francois le Galaup, Comte la Pérouse, was surprised, too. He had not expected that the great fortress would surrender without giving battle: and he was relieved at not having to fight, for his men were weary and their morale was low after the long voyage.

Fort Prince of Wales could have held a garrison of three or four hundred, but that day there were only thirty-nine men within its walls; and there were no trained crews to man any of its forty-two guns, each of which required about ten men. It is reported that when Hearne saw the French troops, with field guns, landing on the point of land that led to the fort he grabbed a white table-cloth and waved it over the parapet. Having had considerable battle experience during six years of active service in the Royal Navy, he was competent to make a sound appreciation of the situation: he recognized its utter forlorness, and he prudently and honourably surrendered. And that was the rather in-

credible end to the story of one of the greatest fortication works ever built in North America.

Since that summer day in 1782 Fort Prince of Wales has been a stone derelict on a narrow promontory jutting into the northern ocean. The ruins of the fort, now being restored by the Canadian government, stand across the mouth of the Churchill River from the huge grain elevator at the port of Churchill.

The mouth of the Churchill River was discovered in 1619 by the Danish navigator, Jens Munck. Munck, with his sixty-five men, wintered in the area, but by summer 1620 scurvy and other afflictions had killed all except Munck himself and two sailors. The three survivors sailed a small sloop back to Europe, and the Danes never returned to the region that had been claimed for their king.

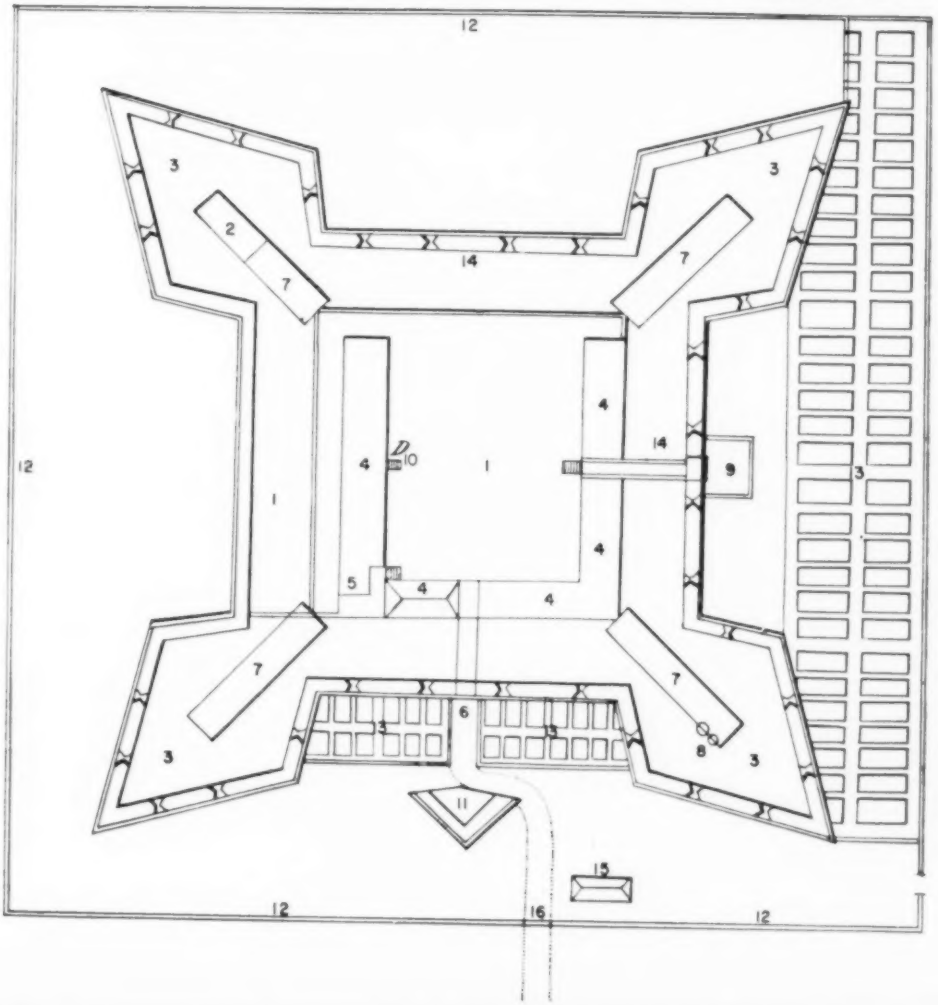
Probably the next European to enter Churchill harbour was Captain Abraham, the commander of a Hudson's Bay Company sloop, who visited the region in 1686. It was he who gave the harbour and the river the name "Churchill" in honour of young John Churchill (later the Duke of Marlborough) who had become governor of the Company the year before.

It was not until 1717 that there was a permanent establishment in the region. During that year Captain James Knight built a trading post for the Company a few miles up the river on the site of the winter quarters of the Munck expedition. That post became an important centre for the Company's fur-trading and whaling enterprises.

In the summer of 1731 Richard Norton, who had earlier served at York Factory, was sent to take over as chief factor at Churchill and to build a stone fort in the region. In the early days of trading in Hudson Bay there had been bitter and violent rivalry between the Company and French traders, and a number of the Company's posts had been burned: the Company determined not to be caught again with only log pallisadoes for defence.

The site chosen for the fortress was Eskimo

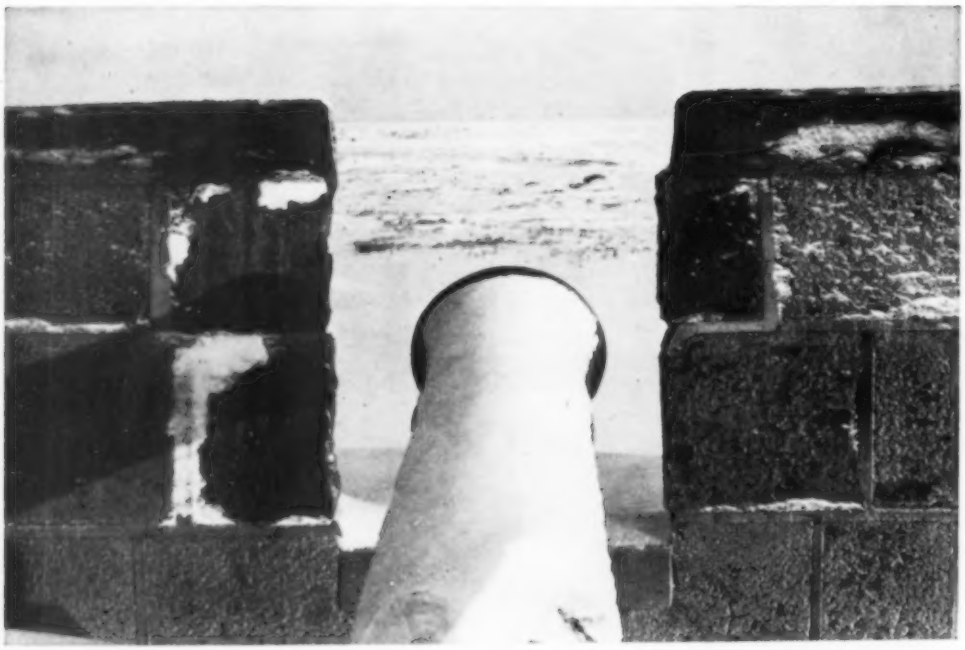
Reproduction from the diagram made by La Pérouse of Fort Prince of Wales before its attempted destruction in 1782. Public Archives of Canada



KEY

1. Parade-ground
2. Powder magazine
3. Bastions
4. Stores and barracks
5. Governor's quarters
6. Entrance to the fort
7. Passageways at ground level leading to gun gallery above
8. Observation post
9. Latrines
10. Stairway
11. Ravelin
12. Palisade
13. Gardins
14. Raised gallery housing 40-gun battery
15. Small store house
16. Palisade entrance

A party of visitors from Fort Churchill, the Canadian Army base about six miles down the coast from Fort Prince of Wales



A cannon overlooking the frozen bay around the fort.

A partly rebuilt ammunition magazine at the fort.

Point, the sharp, rocky promontory on the western side of the mouth of the river. Plans for the fort had been prepared by military engineers and expressed the best fortification principles of the time. During the late summer of 1731 the foundation was laid out: it was to be roughly square and three hundred feet from bastion to bastion. Some preparatory digging was done that year, and stone and lime were gathered.

Progress was very slow. The waning of French power during this period eliminated the need for haste. During the summer of 1734 the first cannon arrived from England, and by early August three had been mounted. By 1746 the ramparts seem to have been completed. A supplementary battery was built on Cape Merry, the point on the opposite side of the river's mouth: the ruins of this battery are just beyond the modern townsite of Churchill. The fort was not considered finished until 1771 or 1772.

In 1769 Fort Prince of Wales was a centre for research in what was probably the first great international scientific enterprise. About the middle of the eighteenth century the English astronomer, Edmund Halley (he of the comet), demonstrated that it would be possible to estimate the distance of the earth from the sun from observations of the planet Venus as it appeared to pass over the sun's surface. By this time it had been calculated that Venus passed the sun only four times in every 243 years and that the next such "transit" would take place 3rd June 1769. This stimulated the European scientific world to organize a great co-operative enterprise to observe from a number of points the transit of Venus. Observers were spread out from Siberia to Tahiti: as one historian of astronomy puts it "the globe was studded with observing parties".

One of these observing parties, sponsored by the Royal Society of London, was established at Fort Prince of Wales. William Wales, one of the leading astronomers of the time, and an associate, Joseph Dymond, came out from England as guests of the Company. They spent the winter of 1768-69 at the fort, and on 3rd June 1769 they made the required

View of one of the gun galleries at Fort Prince of Wales.

Ruins of barracks and Governor's quarters inside the fort.

observations from a small observatory they had set up at the fort. (That same day James Cook made similar observations on the island of Tahiti: that was during the first of Cook's famous voyages to the South Seas.) The first meteorological observations in Canada of which there is any record were made at Fort Prince of Wales in 1769.

It was from the fort that the young Samuel Hearne, a servant of the Company, set out on his journey of exploration across the barrens. In July 1771 Hearne reached the Arctic ocean at the mouth of the Coppermine River: he arrived back at the fort on 29th June 1772.

In 1775 Hearne was appointed governor of the fort. The Company at that time faced a new and serious challenge. After the British conquest of Canada — Wolfe captured Quebec in 1759 — fur-traders working out of Montreal, mostly Highland Scots who allied themselves with experienced French woodsmen, became very active in the West. Up to this time the Hudson's Bay Company had kept to the coast and obliged the Indians to come down the rivers to the posts, but now it had to move inland to meet the aggressive competition of the traders who later were to form themselves into the North West Company. Hearne gave active leadership in this programme of inland expansion, and he himself founded Cumberland House to give the Company command over the Saskatchewan River route.

In 1782 Hearne and the Company were much more worried about Montreal Scotsmen than they were about French raiders. It seems reasonable to assume that the smallness of the garrison in the fort in August 1782 was due to the fact that most of the Company men in the region had been sent inland on trading expeditions.

La Pérouse had been with the French fleet that had been sent to fight the British in the West Indies as a result of a treaty between France and the American colonies fighting for independence from Britain. Admiral Rodney ended France's dream of dominance in the Caribbean by decisively defeating her fleet in April 1782: the French then determined to

harass British commerce in the New World, and it was as part of this operation that La Pérouse's small squadron was sent to Hudson Bay.

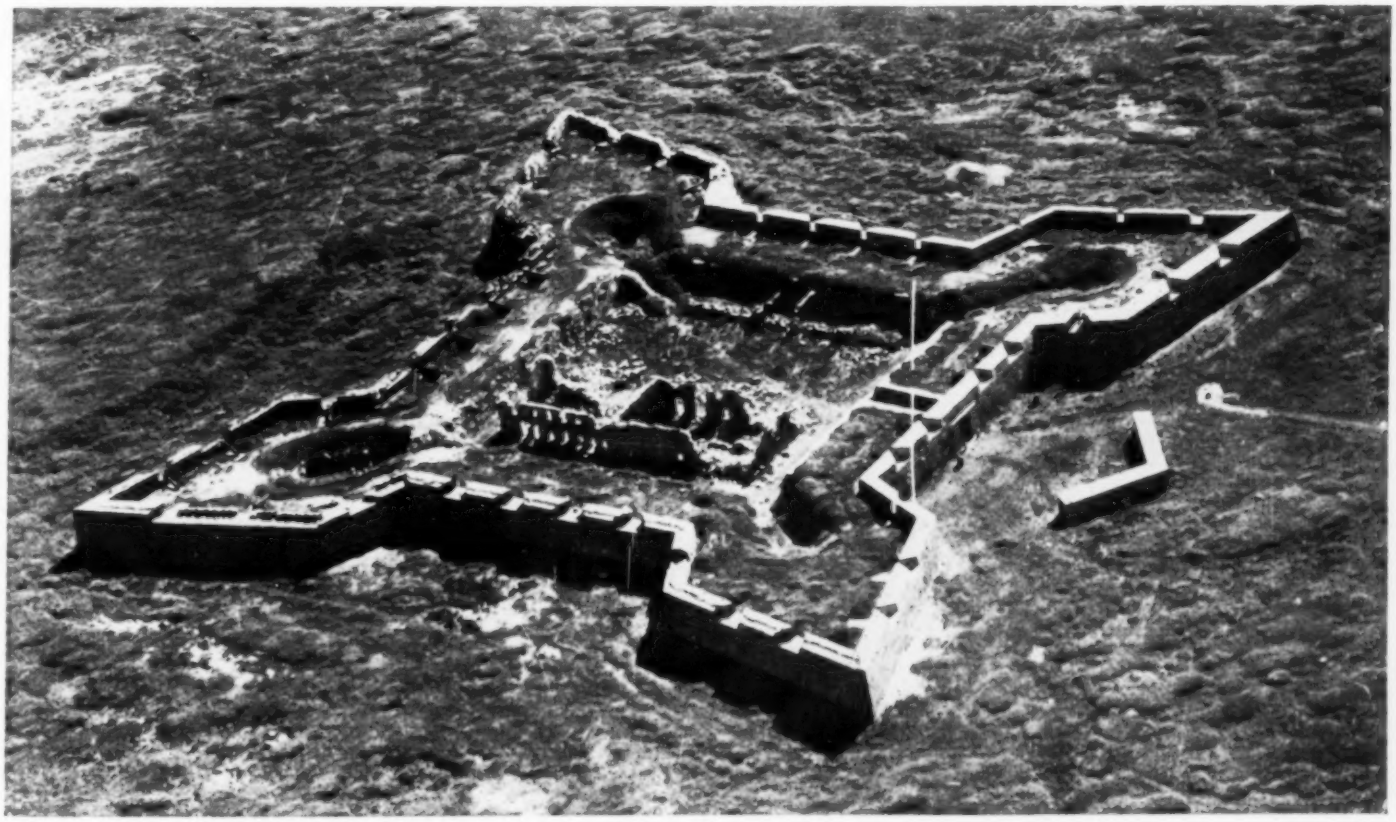
La Pérouse's first action in the Bay was at Fort Prince of Wales. After the surrender his men spent two days trying to destroy the fort. They burned the wooden buildings and blew in the walls of the stone barracks. Explosive charges were set off in the mouths of the cannon. Attempts to blow up the outer walls, which were from thirty to forty feet thick, were unsuccessful. Hearne and his men were taken prisoner, and Hearne later found his way to England.

In the summer of 1783 Hearne returned to Churchill to re-establish the Company's cause in the area. No attempt was made to re-occupy the wrecked fortress, and a new post was built up the river a few miles in the vicinity of Knight's earlier post.

There is, indeed, a touch of the preposterous in the story of Fort Prince of Wales. As it is put in an official publication of the Hudson's Bay Company, "It is an oddity of the Company's long story that fur traders should have built and maintained the greatest stone fortification in North America (excepting possibly Quebec) on Hudson Bay at the mouth of the Churchill River." The late Douglas Mackay, in his fine history of the Company, *Honourable Company*, wrote: "Fort Prince of Wales, for all the strength of its walls and the power of its cannon, had a brief and uninspiring history."

During the summer the ruins of this once-great fortress can be reached by boat and canoe from the modern town of Churchill: in winter visitors sometimes make excursions over the frozen river by dog-team and in over-snow vehicles. Today's visitor, as he stands amid the ruins, marvels at the building of such a massive fortress by so few men working without machinery and with but few animals, and in a region that has eight months of extremely harsh winter every year.

Aerial view of Fort Prince of Wales in summer. The outer walls have been restored in recent years.
R.C.A.F.



Lebanon

by SYLVIA SEELEY

Foreword by His Excellency, Robert Klat, Ambassador of Lebanon

J'ai vivement apprécié l'article que se propose de publier Madame Sylvia Seeley dans le Canadian Geographical Journal, à propos du LIBAN. Je suis persuadé que les lecteurs de cette intéressante revue connaîtront mieux mon pays, et en le connaissant mieux, ils l'aimeront davantage.

Et c'est avec plaisir que j'encourage cette publication qui, tout en instruisant, développe l'amitié entre les peuples et contribue en ce qui nous concerne, à resserrer les liens si cordiaux qui existent entre le Canada et le Liban.

ROBERT KLAT,
Ambassadeur du Liban.

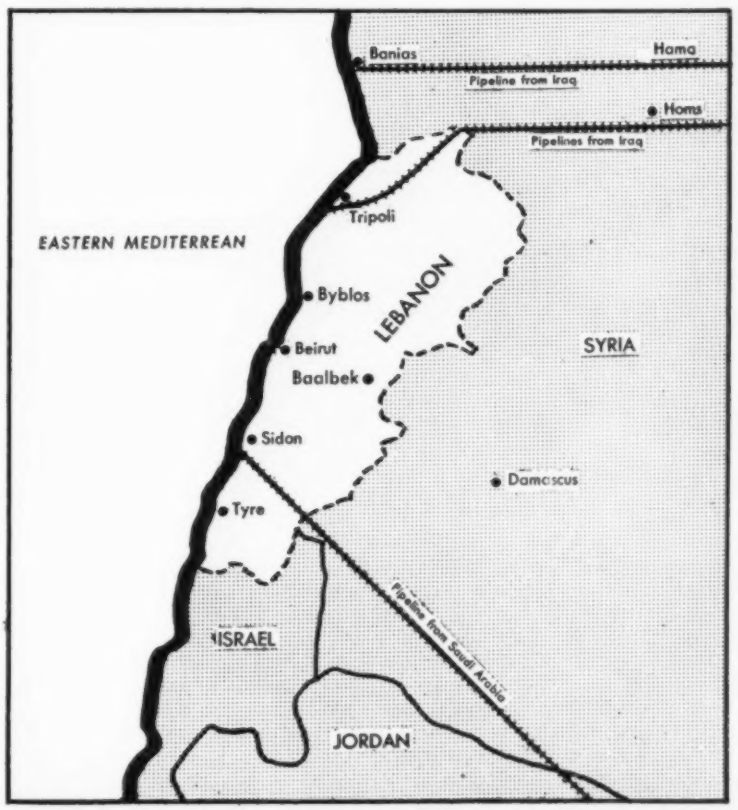
THE REPUBLIC of Lebanon offers an outstanding example of the fact that a country's importance does not depend necessarily on its size. Lebanon today occupies a strip of land of some 4,300 square miles in area on the eastern shores of the Mediterranean. But that strip is a most valuable and crucial pivot between East and West, and is a land that has inspired its people with marked individualism and energy which has enabled them to override such an initial difficulty as the lack of raw materials, and to have created prosperity in the face of Fate.

Lebanon's unique position between east and west, combined with its restricted area enable it to assume a very free attitude towards political considerations, although the Lebanese people have a definite gift for business collaboration. Seventeen years is a short time in the life of any country, and perfection is hard to seek, but Lebanon has a whole world of tradition behind it — tradition forged in peace and in war, in trade and in religious faith, that have given stability to the national character. The land has given the people little in the way of natural resources, but a great deal in the way of natural beauty, an enticing climate and a good margin of the "wholesome sea". The land rises in a series of terraces from the narrow coastal plain where are situated her famous ports and industrial cities.

Beirut is the capital of the Republic. It is the ancient "Beryte" of the Romans, famous for its School of Law which gave to the Roman Empire its most famous legislators such as Ulpien and Papinien. Today it is a city of 600,000 inhabitants, with three universities, French, American and Lebanese; it is also the commercial and maritime centre of the Middle East. It has a fine international harbour and a modern international airport.

It was the Greeks who first bestowed the name of "Tripoli", or "Three Cities" on that famous town. The reason was wholly appropriate because it was there that the Tyrians, the Sidonians, and the Aradeens were wont to meet and settle their trading problems peaceably. Each one of the three city states had its own established quarters, and the three settlements formed one town. In our own time a parallel may be found in the establishments of the United Nations Organization at Geneva and at New York.

At the time of the Crusades, Tripoli became the capital of the Principality which bears its name. The fortress of Raymond de Saint Gilles was built there and it is still in a fine state of preservation. Today Tripoli is a



These trees are known as the Cedars of the Lord and are all that remain from the time of Solomon. They grow on the high slopes north of Tripoli and the average age may be 2,000 years. Government of Lebanon

The thriving port of Beirut which is the most easterly port of the Mediterranean, and is often called the gateway to Asia; it has 2,500 yards of quayside and handles 2,000,000 tons of cargo yearly.
U.S.A. Operations Mission

town of 120,000 inhabitants and it is the terminus of the pipe-line of the Petroleum Company of Iraq.

Tyre and Sidon, or in Arabic form, *Sour* and *Saida* are the two most famous Phoenician cities of antiquity. Their fame is said and sung constantly throughout the Bible. Even Alexander the Great was only able to conquer the island of Tyre by filling the surrounding sea with his ships for a whole year. It was from Tyre and Sidon that the Phoenicians started out to found trading cities all around the Mediterranean, the most celebrated of which was Carthage. That great city struggled desperately against Rome, led by the warrior Hamilcar and his son Hannibal in the third century before Christ. Today Sidon is a city of 60,000 inhabitants, and it is the terminus of the pipe-line of the Trans-Arabian Oil Company.

Behind these cities and their terraced hinterland are the famous Lebanon Mountains where recently many luxurious resorts have sprung up in response to the demands of an increasing tourist trade. Yet further inland is a strip of country so fertile that it was regarded by the ancient Romans as one of their most valuable grain producing areas. Here they worked hard at food production so that today it has become a fruitful field for antiquarians. Beyond this fertile valley lies a strip of relatively barren and mountainous land bordering on Syria. Certainly the Lebanese make the very best of the soil, and by sheer diligence they compel it to produce to the utmost. This gift, combined with shrewdness and gaiety makes the people welcome settlers in other lands. The number of Lebanese scattered in other countries is nearly equal to the home population.

Professor Hitti of Princeton University tells us that, "the earliest of the historical inhabitants of Lebanon were the Semitic Canaanites . . . later called Phoenicians by

the Greeks." Their culture permeated Syria, their alphabet was a basic gift to civilization. The famous cedars of Lebanon provided timbers for ships which were probably the first to dare the Pillars of Hercules, and to sail out into the unknown adventures of the Atlantic Ocean. Perhaps it is something more than mere legend which tells of trading connections established as far as Ireland in the seventh century before Christ. Even Ptolomy admitted how far advanced was the Phoenician art of navigation. Greek philosophers and Roman lawyers alike realized the debt they owed to the shrewd and venturesome people who dwelt in Lebanon. In later centuries the European Crusaders left their own eloquent mark on the land with their castles and fortifications whose stately ruins are now treasured as carefully as the older monuments.

Through the long ages Lebanon's borders have been under the changing influence of her powerful neighbours but the spirit of a strong and active mercantile republic remains the same, compounded of progressive western ideas while retaining all that is best in eastern tradition. This has resulted in a stability of economy, which means that the per capita income of the population bears very favourable comparison with that of other countries in the Middle East. For its size, Lebanon is densely populated, but as the surface is so mountainous, only about twenty-five per cent of it is cultivable. This problem has been successfully dealt with in various ways. Free trade and lack of exchange restrictions has encouraged the mercantile spirit of the people; emigration has been a two-fold benefit; not only does it relieve population pressure at home, but it also leads to strong and friendly trading connections in those lands where the emigrants settle. The tax rates on commerce are relatively light, and this attracts foreign capital. Canada enjoys a reciprocal "most favoured nation" tariff rate to foster mutual trade.

Lebanon presents to the world an epitome of the history of humanity. Most great conquests and social revolutions have had their repercussions in this little country, whose long story serves to illustrate man's aspirations and his ceaseless struggle for a life of freedom and dignity. In spite of so many vicissitudes, so much military occupation, the soul of Lebanon has triumphantly met the challenge of every century. Near the mouth of the Lictus River, there is inscribed on great blocks of granite the names of the mighty conquerors who throughout the centuries have passed that way.

Lebanon's freedom today is the answer to each challenge. Through the ages many different powers have coveted and desired to dominate that delectable strip of territory, and from time to time, certain powers succeeded in so doing. Nevertheless, even during the Ottoman occupation, which lasted down till 1918, Lebanon preserved her autonomy in the face of the Sublime Porte. It never be-

This terraced style of fruit culture has been introduced from Italy. The apple crop seen here is particularly successful and apple trees have now superseded the mulberry trees that were formerly produced in great quantities.
U.S.A. Operations Mission

The banana crop is also very important. The fruit is very carefully packed for export and protective pads are placed between the layers in the crates to prevent bruising. U.S.A. Operations Mission

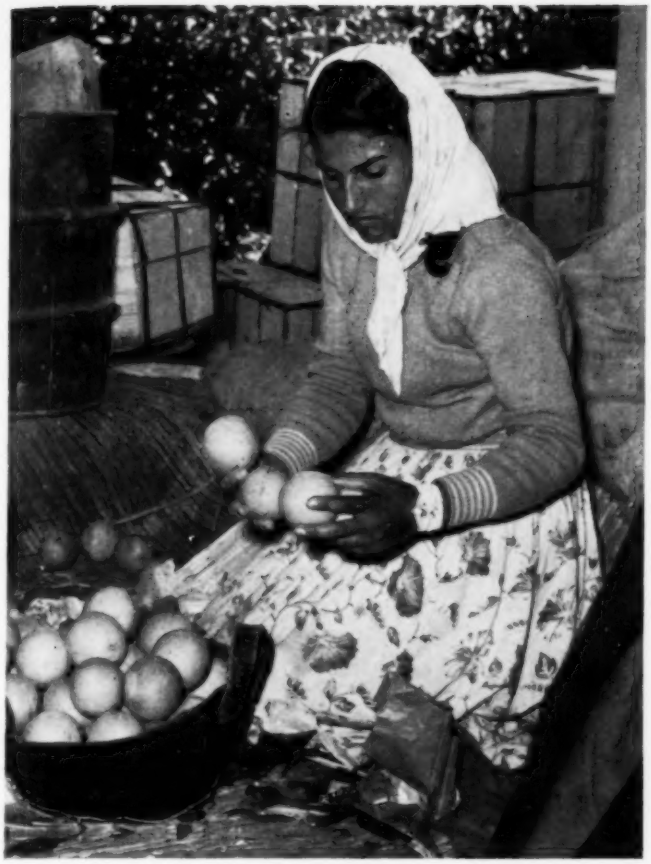
came a part of the Ottoman Empire as did the other Arab countries. It was during this period that we find some of the greatest of the Lebanese Emirs, notably Emir Bechir Chenab.

Lebanon's position as a passageway for foreign armies in the Middle East during two World Wars led to many complications in mandates, controls, alliances and protection so that her complete independence was not finally achieved until 22nd November 1943. Since that date Lebanon has exercised all the rights and the obligations of full sovereignty. She is a member of the Arab League and of the United Nations. In constitution she is a democratic republic; elections are based on universal suffrage, and the government which represents the political majority is responsible to Parliament.

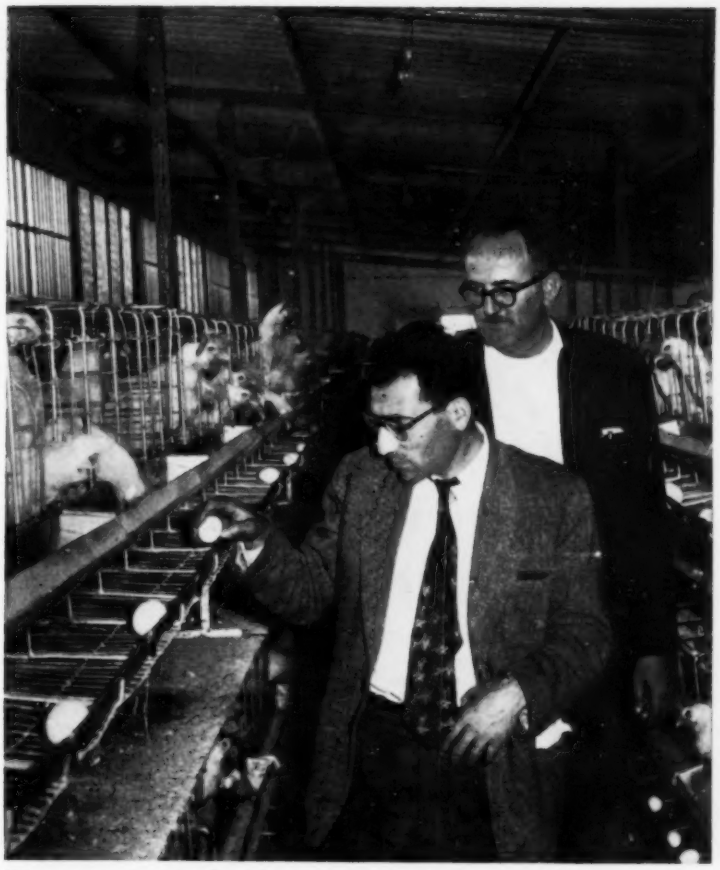
The President of the Republic is elected for six years and the term of office is not renewable. Parliament is elected for four years. Owing to her geographical position, and the generous laws which govern the national economy, Lebanon enjoys a high degree of prosperity. During the summer of 1960 the Government is organizing a world congress to form an association of Lebanese citizens scattered throughout the world. In every continent people of Lebanese origin are invited to come forward and join in this national organization.

It is a delightful paradox that one of the newest countries to gain political independence should contain the oldest known inhabited city in the world, the once famous port of J'bail, more familiar to western travellers under its Graeco-Roman name of Byblos. Today it is little more than a small fishing town, but its inhabitants are descended from the original Phoenicians, and from later races, Egyptian, Assyrian, Greek, Roman, European Crusaders; and Turks who invaded the land in unbroken succession. No other town in the known world can boast so long a line of continuous habitation, and the people go about their day to day occupations surrounded by some of the most priceless and varied treasures of ancient times. Far more spectacular are the world famous ruins of the city of Baalbek which lies at the northern end of the Bekaa valley between the two parallel mountain ranges. In the temples here through the centuries, prayers have been

Fruit picking in Lebanon is an important industry on account of the high proportion of land devoted to fruit raising and the care with which the fruit must be handled. U.S.A. Operations Mission



Women supervise with minute care the condition of the fruit before it is exported. U.S.A. Operations Mission



This is an egg and poultry inspection being carried out at an American Experimental farm at Beirut. U.S.A. Operations Mission

offered to Baal, to the Olympian gods, and the gods of the Romans. Here Allah has heard the prayers of the Faithful, and the Christians too have worshipped. The ruined temples, the ancient mosques, the churches of the Crusaders are all now carefully preserved by the Department of Antiquities.

A few years ago an international festival was instituted at Baalbek to be held each year in the month of August. Artists of world renown come to perform in the majestic setting of the temples dedicated to Jupiter and Bacchus. The old Vic company of London, the Comédie Française from Paris, the Philharmonic orchestras of Berlin, Vienna, Rome, and New York have each in turn taken part in making these performances of the highest possible cultural value. The final week of each festival is devoted to the traditional music and dancing of Lebanese-Arabian folklore. It is to be hoped that some day the Canadian performers from Stratford, Ontario, will present their Shakespearean plays amidst the profound splendours of Baalbek.

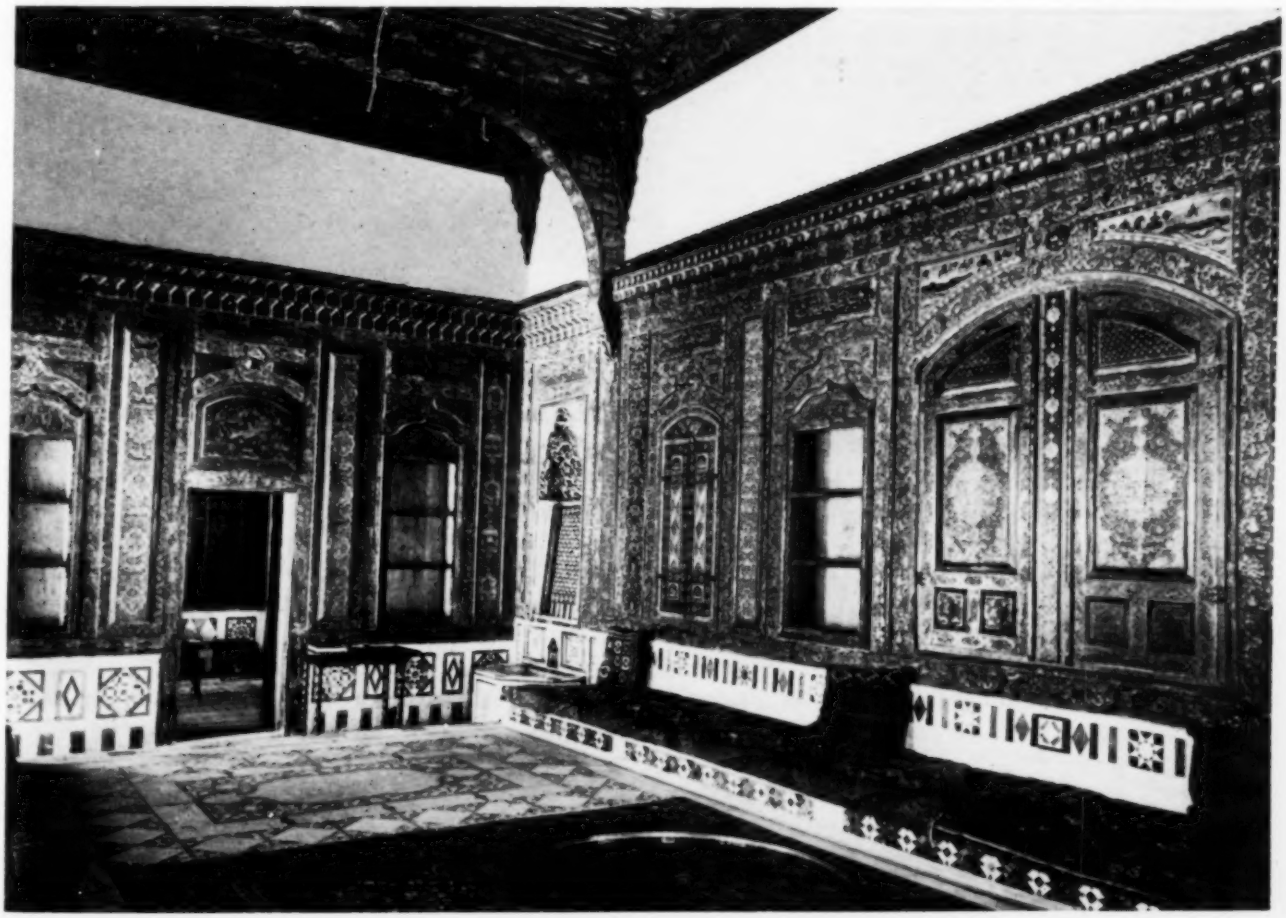
Part of the buildings of the American University of Beirut. This university was founded in 1866 on a charter granted by the University of the State of New York. In 1959 the enrolment numbered 2,454 drawn from fifty nationalities, and twenty religious denominations were included. Government of Lebanon

A general view of Tripoli, which is the second city of the Lebanese Republic. It is an important centre for the grain and cereal trade. Government of Lebanon

The city of Baalbek was formerly known as Heliopolis, the city of the sun, a name often used in classic days. Its majestic ruins make the perfect setting for the great dramatic and musical festivals held there.
Government of Lebanon

The Palace of Beit Eddine was built in the early years of the nineteenth century. It is now used as a national museum. Government of Lebanon

The interior of the museum is Arab in style but the decorations show strong Florentine influence. There was much traffic and trade between Florence and Lebanon at the beginning of the nineteenth century.
Government of Lebanon



Spanish Explorations in British Columbia

by C. H. LITTLE

ALONG THE coastline and among the islands of British Columbia and Alaska there are scores of Spanish names. These derive from eighteenth century voyages of discovery carried out by Spanish ships from their base in San Blas, Mexico, and from their fort established in Friendly Cove, Nootka Sound, Vancouver Island. The voyages commenced in 1774 when Spain grew apprehensive of Russia and concluded in 1792 when the Nootka Convention gave Britain special rights in what is now British Columbia.

To obtain a true perspective of eighteenth century voyages it must be realized that the primary object for explorers of all nations was still the discovery of a water passage which was believed to connect the Atlantic and the Pacific. The instructions given to captains generally begin on this theme and insist that they avoid wasting time on areas already explored or on inlets and rivers. This explains why the coastline was not surveyed in detail and why such famous explorers as Cook and Vancouver missed what we now know to be important rivers of which the Columbia and the Fraser are the most quoted examples.

There are three claims to have visited the North Pacific as early as the sixteenth century.

One of these we know to be valid because it was the work of that famous Elizabethan, Sir Francis Drake, who sailed around the world in the "Golden Hind". On the way he claimed California for his Queen under the name Nova Albion and then sailed north to what the imperfect navigational instruments of the time estimated to be between 48 and 49 degrees north latitude before the "stinking fogges" drove him southward without a further landing.

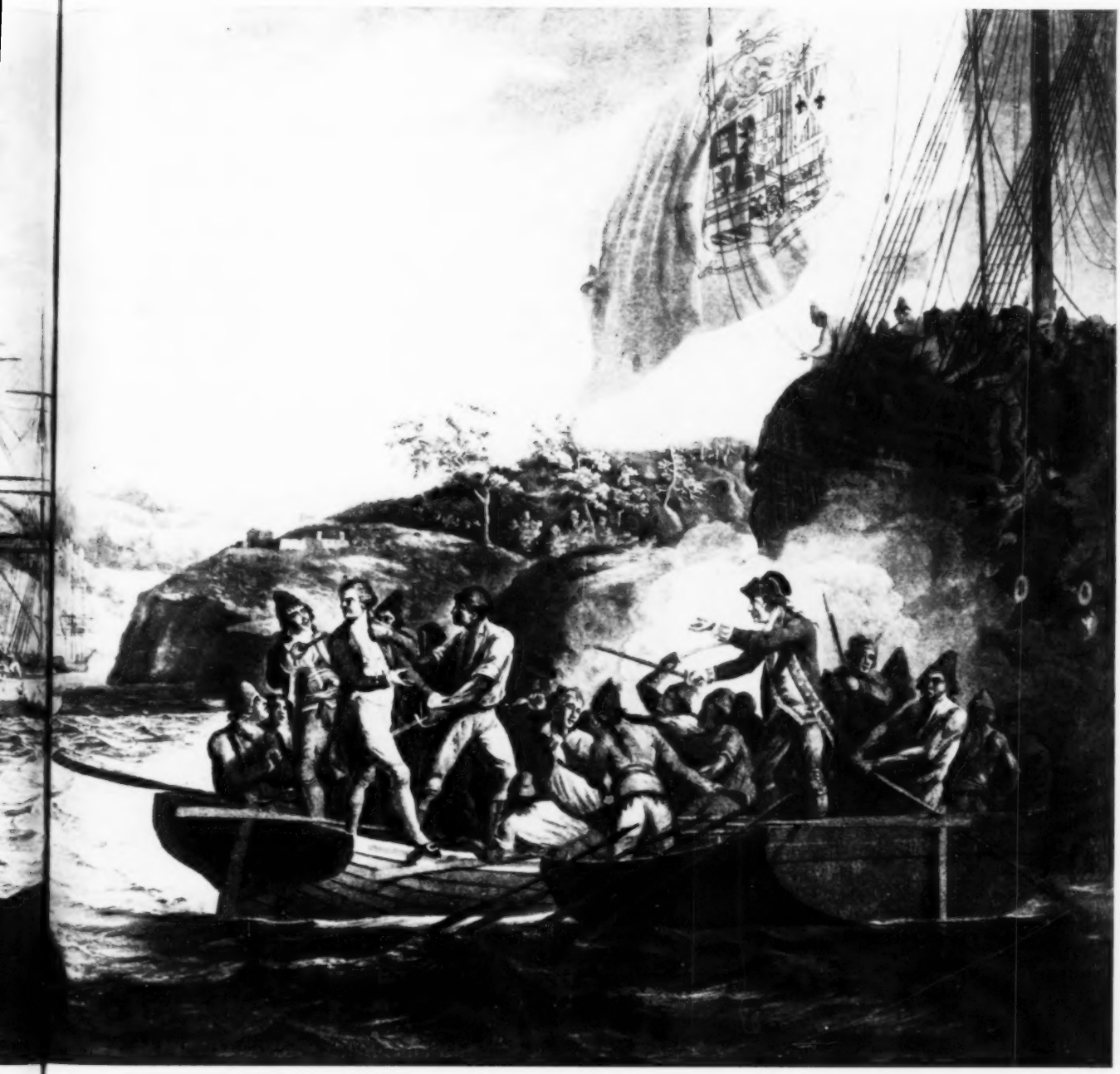
The other two claimants are less certain. One, a Spanish mariner named Lorenzo Ferrer Maldonado, stated that in 1588 he went beyond 50 degrees north and discovered the entrance to the strait of Anian — a favourite name for the supposed East-West passage.

The capture of the English Captain Colnett and the seizure of his vessel the Argonaut *by the Spaniards at Nootka Sound in 1789. This seizure formed part of the "Nootka Incident". The scene is reproduced from an engraving published in 1791, after the painting by R. Dudd.*

Public Archives

Whether he made the trip or not, it is a fact that he was still being mentioned two hundred years later in the official correspondence of England, France and Spain. If you look at the chart you will find his name.

The second, a Greek sailor with the Spanish name of Juan de Fuca, has been the subject of much controversy. His claim to have passed 48 degrees north, to have entered a strait with a definite pillar at its mouth, to have sailed east for several days and to have



found the Northwest Passage is clearly recorded in a deposition made at the end of the sixteenth century by an English business man named Michael Lok. Lok wanted de Fuca to sail under the English flag and the latter agreed but money was short and the years ebbed away until the Greek captain died and nothing further had been done. No other voyage was made to the area for nearly 200 years and it was not until 1787 that Juan de Fuca had his name put firmly and forever on the chart by the fur-trader Captain Barkley. While Juan de Fuca could not have been correct in his claim to have discovered a passage between the two oceans, his latitude is right, his general description is right and Fuca's Pillar as well as the name of the strait testify to the cartographer's faith in him.

For years the North Pacific remained undisturbed by white men until the Russians began their explorations north and east of Vladivostock and, mainly through the great

efforts of such adventurers as Behring and Tschirikov, established their trading posts along the Alaskan shore. In the 1770's word of these Russian exploits reached the Spanish Viceroy in Mexico and considerable governmental and diplomatic correspondence followed. It should be remembered that Spain and Portugal had divided the whole new and still undiscovered world from pole to pole by the treaty of Tordesillas signed in 1493 and that the Spanish, therefore, resented the intrusion of the Russians into what they considered their legal sphere of influence and occupation.

This was the background to the first planned voyage of discovery by Europeans into the North Pacific from southward. In 1773, plans were made by the Spanish authorities in Mexico to investigate the unknown ocean and at midnight on January, 25th, 1774, the voyage began.

A handwritten copy of the instructions to the Commanding Officer is in the Library of the Naval Museum in Madrid. These instructions merit consideration for they are a pattern for those issued to all the Spanish explorers and, with the necessary national changes, to those of other countries as well.

The first article deals with solemnities — the royal wishes, the desirability of propagating the faith, Spanish sovereignty and the like. The second article designates the captain — in this case a young man called Juan Pérez with a rank that would correspond to our confirmed sub-lieutenant (*Alférez de fragata graduado*). The third allocates the ship, the frigate *Santiago* or *La Nueva Galicia* with a complement of ninety including the Captain, two navigators, the chaplain and the surgeon. (Spanish ships frequently had two names, one religious and one secular). Then follow details of medical supplies on board and the order to sail when conditions permit. There are instructions to visit the Spanish establishments of San Diego and Monterey and the procedure to be followed in new places. This is the formula translated:—

> "In all places of which you take possession you are to erect as a sign a large wooden cross and build a mound of stones in which you will conceal a glass bottle. In this you will insert a copy of a document of possession signed by yourself, by the chaplain and the two navigators, stopping the bottle carefully with pitch so that in future times it will better preserve this document and serve as an authentic testimony."

Later on there are five pages of details about this formula and the exact procedure to be followed by everyone.

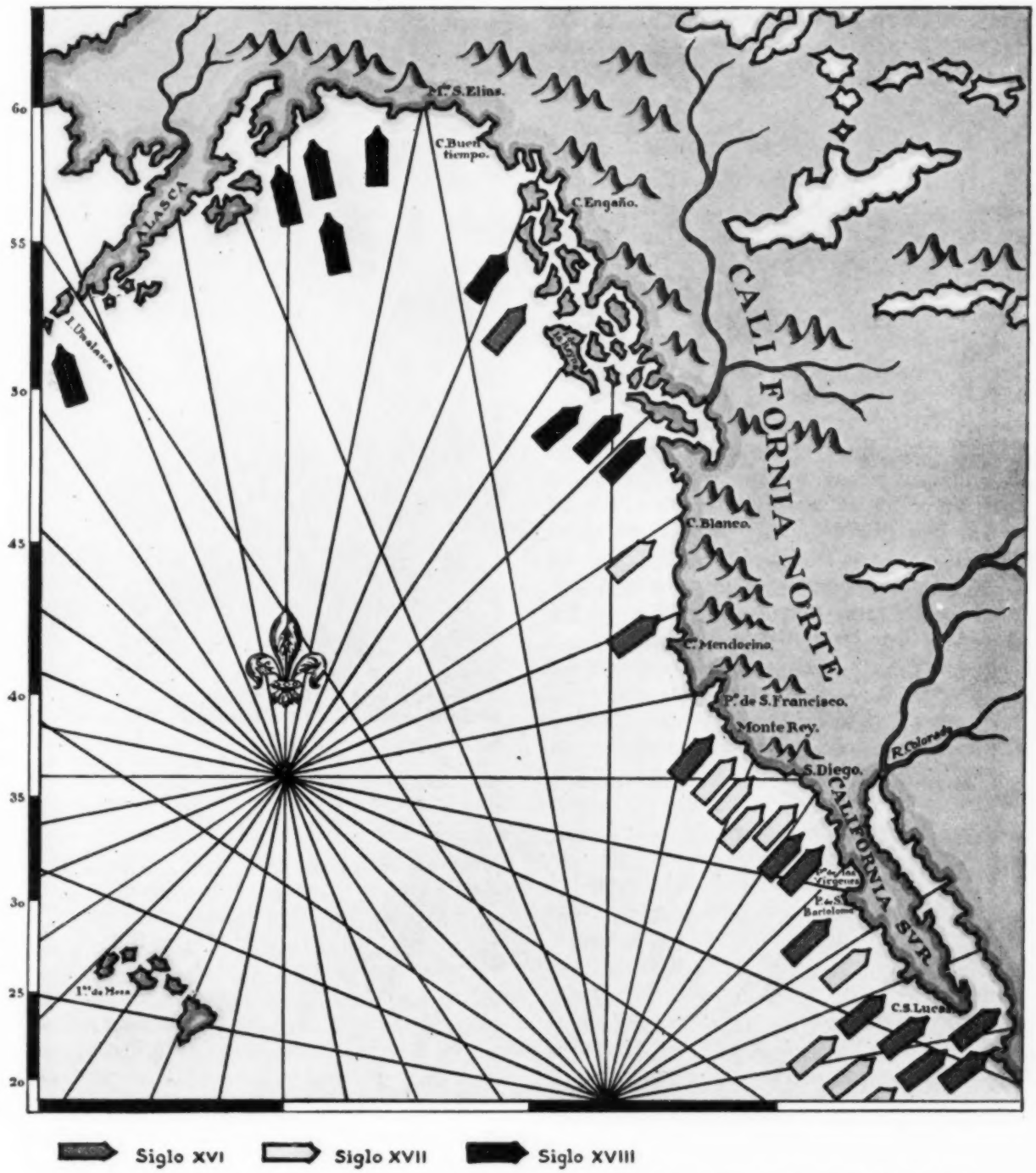
The Captain is told how to deal with foreigners, with other ships, with natives; what presents to give, what discipline to maintain, what to do in case of accident, and finally both he and the navigator are instructed to maintain a separate diary of events.

His Catholic Majesty's Ship *Santiago* sailed from San Blas when the wind turned favourable in the dark hours of January 25th. Not until we study the shape and the rigging of such a ship do we appreciate how difficult it was for her to make good her course. To add to the captain's other worries, navigation was far from the exact science we know today. This ship was wooden, high in the stern, broad in the beam. She soon acquired a dragging load of barnacle and weed. She leaked and was seldom dry. She was crowded and uncomfortable and hard to work. She had three masts with square sails i.e. sails running athwartship with restricted movement from side to side. As a result she ran well before the wind to which her sails and her high poop presented fine targets but made miserable progress when the wind was ahead. The Captain's problem was to sail such a ship against prevailing westerly winds without charts and with only an approximation of his distance north and south.

Santiago followed the usual practise of bearing well out into the Pacific until it was thought that the latitude of San Diego had been reached whereupon she turned and ran for the shore hoping for the best. Somehow she reached San Diego, rested and refitted, went on to Monterey and prepared for the voyage into the unknown. But this preparation took nearly six months.

On June 6th Pérez left Monterey and went in a general northwesterly direction for six weeks.

It was not until July 18th that land was recorded. The position given was 53 degrees 53′ north but there was clearly some doubt



A map showing the principal Spanish expeditions of exploration along the west coast of North America during the sixteenth, seventeenth, and eighteenth centuries. This map was published in Publicaciones del Museo Naval, *Madrid, 1932.*

for on the 19th the log states that they sighted a sharp point which was named Santa Margarita and which, it was admitted, might lie as far as 55 degrees north. The actual position is 54° 15′ 18″ N. It still survives on the chart with the Spanish name.

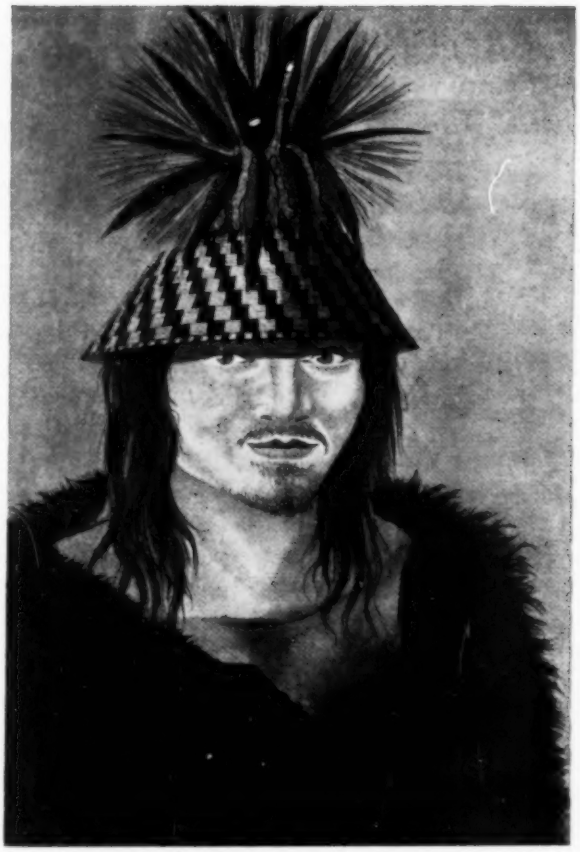
Still looking for the Northwest Passage Pérez went eight leagues farther north and gave names to the two most prominent landmarks:— Cape Santa Magdalena and Santa Cristina Island. No landing was made and on July 21st the *Santiago* turned southward.

En route a prominent chain of mountains was sighted in what we now call the Queen Charlotte Islands and to them the name San Cristóval was given.

Nothing further of note occurred until August 7th when the *Santiago* anchored in twenty fathoms with a black sand bottom "a league from the nearest land where they searched for an anchorage hoping to find better shelter with the launch or ship's boat". The position given is 49° 30′ North and 3° 51′ West of Monterey*, California. (Longitude was particularly difficult to determine because the common base line of Greenwich had not yet been set up and because chronometers were unreliable. It was customary to set up an arbitrary datum point and to refer to it leaving conversion to other reference points for later computation). The bay was named San Lorenzo because they arrived on Saint Lawrence's Day (August 8). A point six leagues northwest was called Santa Clara, and a point two leagues southeast of the anchorage was given the name San Esteban from which derives the modern Estevan Point as an alternate spelling. Pérez is believed to have named the point after a fellow officer Ensign Esteban José Martínez, but the two friars who were in *Santiago* characteristically referred to it as "San Esteban" on the assumption that it had been named after the Saint. The hand-written account in the Madrid Naval Museum also notes that a stony point stretches out from Punta San Esteban for three quarters of a league into the sea in a northwesterly direction and causes considerable turbulence.

"In that place fifteen Indian canoes approached and carried on trade with the crew from whom they received mother-of-pearl shells for their furs and small fish which they handed over before receiving the counterpart without mistrust or deceit". But soon the Indians began to ask for metal, particularly copper and cutting instruments. These too were traded.

*In Spain and Mexico this name is spelled with two r's. The spelling given is that which is used in the U.S.A.



An Indian chief at Las Bocas de Winthuyssen (now Nanaimo), believed to have been painted by Cardero, an artist and draughtsman who accompanied Malaspina on his voyage around the world. From Publicaciones del Museo Naval.

An eighteenth century Indian archer of Monterrey, California. After the sketch by Suria, another artist who accompanied a Spanish voyage of discovery. From Publicaciones del Museo Naval.

The Indians are described as being "as white as the best Spaniard", wearing furs and apparently having never seen "civilized people" before.

Pérez himself took the launch and explored the area looking for a sheltered anchorage but was not satisfied. He returned to his ship and sailed shortly afterward. The reasons for not going into what Cook found four years later to be so snug an anchorage that he named it Friendly Cove were undoubtedly the weather, the Indians and fear of damaging a lone ship on an unknown coast. Curiously enough *Santiago* was short of water and the two reasons given in the log for the sudden departure are weather and water. Doubtless Pérez would have landed to replenish his water supply — if for no other cause — had it not been for his apprehension of the natives and his anxiety for the safety of his ship.

After calling at Monterey Pérez reached San Blas on the third of November and thus completed a historic voyage in Canadian history.

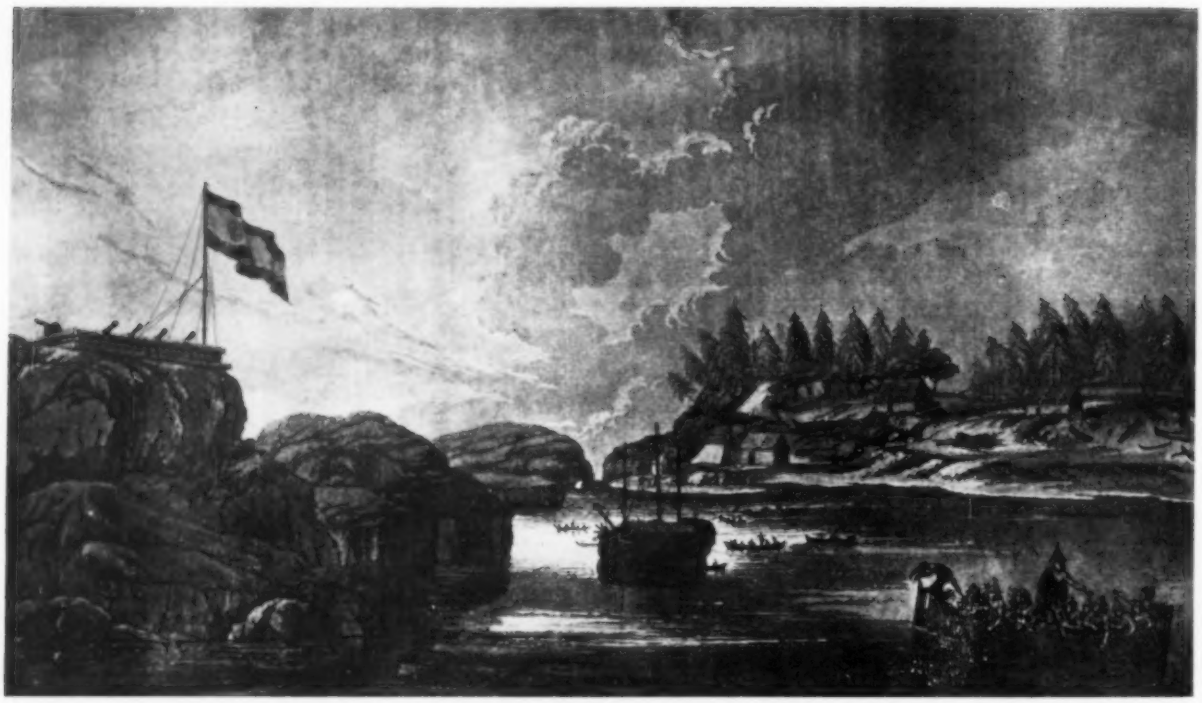
The official report of the Viceroy praises Pérez for his achievement and observes that the voyage has been a good preparation for future expeditions. However we, with the benefit of hindsight, are forced to the conclusion that a landing at Nootka and a subsequent claim of the area for the Spanish crown would have put Spain in a strong position to keep out other nationalities and might well have deterred Cook from establishing the British claim to the Northwest Pacific in 1778. Had settlement and colonization followed such a landing the history of Pacific Canada might have been vastly different and even without colonization prior discovery would probably have precluded the Nootka Incident of 1789, the resultant Spanish Armament, Vancouver's voyages and the Nootka Convention. In their place would have been Spanish history made by sailors and traders based on Nootka (or other harbours), and who can tell what later nternational developments ?

In 1775 the North Pacific was visited again by a Spanish expedition from San Blas but this time three ships set out — The *Santiago* as the leader, the schooner *Felicidad* or *Sonora* for exploration in shallow water, and the store-ship *San Carlos* to solve the supply problem. The commanding officer of *Santiago* was Senior Lieutenant Bruno de Heceta with Juan Pérez as First Lieutenant and Navigator. The schooner was commanded by Junior Lieutenant Juan de la Bodega y Quadra with Francisco Maurelle as Navigator. The store-ship went only as far as California.

The sea otter, once abundant along the north-west coast of North America. The beauty and value of the fur led to widespread hunting expeditions from many countries, the establishment of posts along the north-west coast, and near-extermination of these animals.
National Museum

The instructions given to the expedition were a repetition of those drawn up for Pérez the previous year with the exception that Heceta was to sail directly to latitude 65° north and then work southward seeking the elusive passage between the two oceans. The *Sonora* proved miserably small and, indeed, often had to be towed. Eventually, *Santiago* turned back and little *Sonora* went on alone. Alaska was reached, more of the coastline was examined and the hard lesson was learned that really good ships were needed for such arduous work. However, the Spanish authorities must have been satisfied for they hurried the *Sonora's* surveys back to Spain to be published in chart form. A number of promotions were also handed out by the Spanish Government.

There was a gap of four years while new ships were built. In this period occurred the third voyage of Captain James Cook during which he visited Nootka Sound in March and April, 1778, and, by his landing, established Britain's claim to the Pacific Northwest.



A sketch of the interior of Friendly Cove, Nootka Sound, about 1789. The Spanish fort is on the left. The store-ship, centre, is probably the San Carlos.

At the end of 1778 Lieutenant Quadra brought the frigate *Favorita* from Peru to San Blas and joined Lieutenant Arteaga of the frigate *Princesa*. On February 11th, 1779, with an increased complement of 98 the two frigates sailed for Alaska. The navigator Maurelle compiled charts and sailing directions for that part of the coast which was explored during the summer and these were given international distribution for both Meares and Vancouver had them when they came to the North Pacific.

Neither the 1775 nor the 1779 expedition touched Canadian soil but their reports had a decided effect on what happened in British Columbia. Failure to find the supposed connection with the Atlantic was most discouraging; the Russians were not regarded as any threat to national security, the land was considered bleak and unpromising. Official Spanish correspondence indicates that the resources of New Spain would henceforth be employed in areas where greater returns were to be expected. This, of course, created a vacuum which was soon filled by British traders (and later traders of other nationalities) following the publication of Cook's Journal and charts in 1784. When Spain reacted to clear out the fur traders Meares' Memorial raised the British House of Commons to fever pitch and war very nearly ensued. However, the Nootka Convention was signed and later amended to give Britain equal trading rights with Spain and peace once more descended upon the area.

During the years 1788 - 1792 inclusive, there were no less than nine Spanish voyages of exploration to British Columbia and Alaska, and it is to these crowded years that the area owes most of its Spanish flavour.

In 1788, Russian visits to Alaskan waters stirred up renewed Spanish interest in the North Pacific and a small expedition was sent from San Blas as far as 60° 13′ North seeking Russian establishments and accurate information about their activities. There were two ships: the new frigate *Princesa* or *Concepcion*, commanded by Lieut. Martinez, and the snow *San Carlos* or *Filipino*, commanded by González de Haro, which served as a supply ship. They returned in the autumn to report to the Viceroy that there was evidence of Russian trading and of other traders as well. This news undoubtedly persuaded the Viceroy to send another expedition the following year for the express purposes of making a Spanish

settlement and of demonstrating, by force if necessary, that the area belonged to Spain.

In the Spring of 1789, the Viceroy Don Manuel Antonio Flores despatched Martínez, who had been with Pérez in 1774 and was also the Viceroy's nephew, in the *Princesa* to Nootka. The faithful *San Carlos* was once more in company. On the 24th of June, the area was formally claimed for the Spanish crown, barracks were built in Friendly Cove and a sixteen gun battery was mounted on an island commanding the entrance. But prior to this, two British merchantmen were taken in prize. One of the affected traders was John Meares, formerly of the Royal Navy. He addressed a spirited Memorial to Lord Grenville complaining of these restraints on trade and of the insult to Britain. When the matter was brought before the House of Commons there was a furore, the "Spanish Armament" was approved and full satisfaction was demanded of Spain under threat of war if the demands were not met. The "Nootka Affair", as it came to be known, was settled without war, however, by the Nootka Convention of October 24th, 1790, as amended in February, 1793, and January, 1794, following the receipt of Captain Vancouver's reports from Vancouver Island, but there was a vast amount of exploring along the coast while the two governments reached their decisions.

Lieut. Martínez was recalled to Mexico in November, 1789, and Nootka remained deserted until April, 1790, when Lieut. Francisco Eliza arrived in the *Princesa* with the *San Carlos*, and a captured British sloop renamed *Princesa Real* in company. These three ships carried out three separate voyages of exploration during the summer. Eliza remained in the vicinity of Nootka doing local surveys including Alberni Canal. Lieut. Salvador Fidalgo went north in *San Carlos* to see what the Russians were doing and to continue earlier work along the coast of Alaska. Sub-Lieut. Manuel Quimper in *Princesa Real* came along the Strait of Juan de Fuca to Victoria, Esquimalt, Lopez Island and Haro Strait. He made the first survey of Esquimalt Harbour and claimed the area for Spain setting up a cross, in accordance with the standard direction, near or on William Head. Cordova Bay, Bazan Bay, Gonzales Point, Lopez Island and Haro Strait are chart reminders of this voyage.

In 1791, Eliza, after spending the winter in Nootka, followed up Quimper's voyage by leading an expedition, consisting of the *San Carlos* and the seven gun schooner *Saturnina* (sometimes called *Horcasitas*) under Mate José María Narváez, through Haro Strait as far as Cape Lazo which they named. Scurvy and the Indians drove them back to Nootka in August but not before they had named Saturna Island, Narvaez Bay, Orcas Island, Texada Island, Lasqueti Island, and Canal de Nuestra Señora del Rosario la Marinera (Vancouver's Gulf of Georgia) from which Rosario Strait remains. They learned from the Indians of a river which corresponds to the Fraser and which they named after the Spanish Prime Minister*; they explored and gave Spanish names, now superseded, to Nanaimo, Departure Bay and the harbour of Vancouver City.

In addition to these exploits, Malaspina's famous world-circling expedition came to Nootka the same year and surveyed several of Vancouver Island's west coast inlets: Zeballos, Esperanza, Espinosa, etc.

In 1792 occurred the last two Spanish voyages in British Columbia waters.

Lieutenant-Commander Caamaño in the corvette *Aranzazu* went from Nootka to Port Bucareli, Alaska (named after a Viceroy of New Spain) and returned by way of Principe and Laredo Channels, Estevan Sound, and Campania Sound, leaving a euphonious legacy of names to future generations.

The voyages of Pérez in 1774, Quimper in 1790 and Eliza and Narváez in 1791, encouraged the Spanish authorities to continue their survey of the Strait of Juan de Fuca and neighbouring waters. The Viceroy of Mexico, the Count of Revillagigedo, agreed to assign two schooners *Sutil* and *Mexicana* and to provide officers from his command.

The choice of ships for the expedition fell on the schooners *Sutil* and *Mexicana*, since it was held that these vessels combined the advantage of light draught, which would

*The Prime Minister of Spain at that time was Floridablanca and it is likely that his name would be given to an important new discovery. Vancouver, whose Spanish was not very good, refers in his *Voyages* to a "Rio Blancho" named after the Prime Minister of Spain, and the narrative of the voyage made by the Spanish schooners *Sutil* and *Mexicana* in 1792 speaks of the "waterway Floridablanca which the Indians called Sasamat". Canal de Sasamat is shown on their chart in a position corresponding to the course of the Fraser River.

The first two men to make the complete circumnavigation of Vancouver Island in 1792, (left) Don Cayetano Valdés (1767-1834) and (right) Don Dionisio Alcala Galiano (1762-1805).
By kind permission of His Excelleney, the Spanish Ambassador to Canada.

protect them against the danger of grounding when navigating channels of little depth and which would enable them to be more easily refloated if they should run aground, with that of handiness under sail or when rowed. In Acapulco they were regarded as better suited for the work than any other vessels which could be procured in the department of San Blas, on the score of their greater seaworthiness. This opinion was communicated to the Viceroy, who signified his approval of their selection and also of the appointment of the officers for the expedition. These officers were the captains of frigates, Don Dionisio Alcalá Galiano and Don Cayetano Valdés, and Don Juan Vernaci and Don Secundino Salamanca, Lieutenants of frigates. (Galiano and Valdés were both in command of Spanish ships-of-the-line at Trafalgar.)

When *Sutil* and *Mexicana* finally sailed for the north from Acapulco 8th March, 1792, the former with a complement of 19, the latter with 20, they were described as follows:

DIMENSIONS AND ARMAMENT OF EACH VESSEL

	Feet	*Inches*
Keel	46	10
Length over all	50	3
Beam	13	10
Draught aft	6	2
Draught forward	5	8

A swivel-gun mounted on a trestle
Four small pieces of ordnance
Eighteen muskets
Twenty-four pistols
Eighteen sabres
The corresponding fuses and munitions; food and water for a hundred days; and various utensils and articles of copper, iron and other materials for presenting and distributing to the Indians.
(Translated from Spanish)

It was in these two small vessels that the first circumnavigation of Vancouver Island was completed. They left Acapulco 8th March, arrived Nootka 13th May, sailed 5th June and returned to Nootka 24th August. They first went to Neah Bay, where Lieut. Fidalgo had started a Spanish settlement, and then explored to the eastward of the Gulf Islands and along the continental shore up to Point Grey.

On 22nd June occurred the historic meeting with Vancouver and Broughton, who were on their own voyage of exploration in H.M.S. *Discovery* and H.M.S. *Chatham*.

When war with Spain did not break out

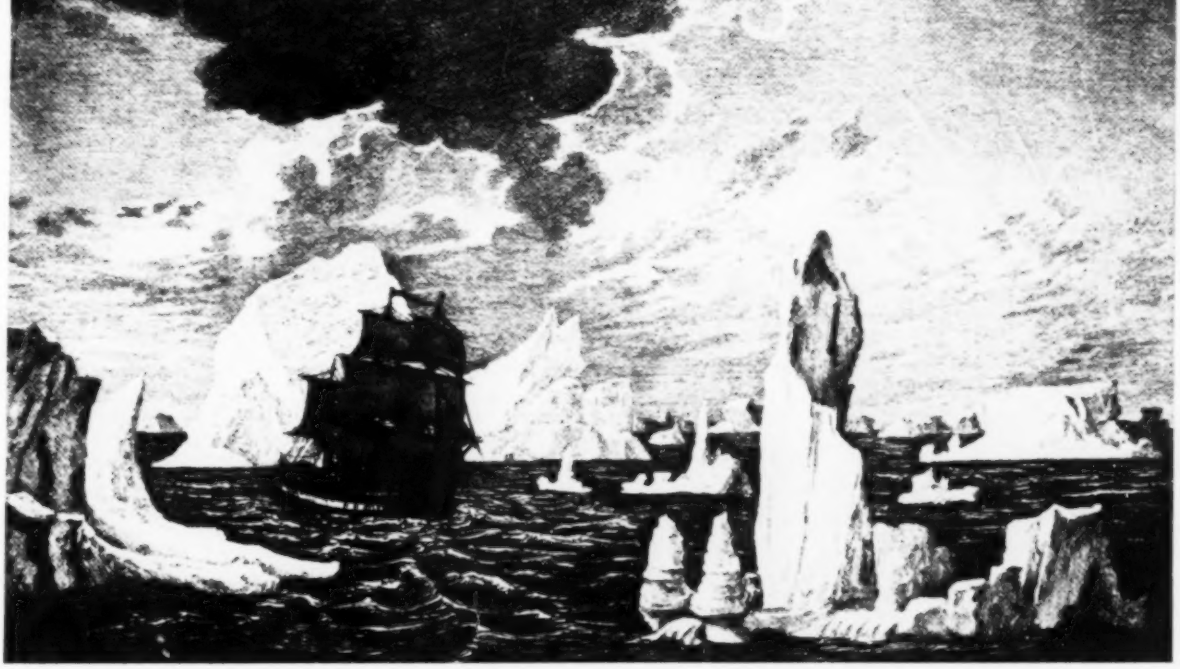
over Nootka, Captain George Vancouver was sent by the British Government to accept restitution of British rights and property. He was also instructed to examine the coast between 60° North and 30° North in search of the longed-for water passage connecting the North Atlantic with the Pacific. It was while he was engaged on this examination that he met the two tiny Spanish ships off Point Grey. Later on in the summer Vancouver and Quadra, now the Spanish Commandant at Nootka, disagreed over the interpretation of their orders but did agree to submit their opinions to their respective governments and to await further instructions. They became great friends and Vancouver proved his friendship by naming what we now call Vancouver Island "the island of Quadra and Vancouver" as a compliment to Captain Quadra. Vancouver's explorations extended over 1793 and 1794 as well.

For three weeks the four ships kept company sharing the burdens of explorations and sharing their knowledge. Finally, on 13th July, the schooners went on through Sutil and Cordero Channels, along the continental shore, out to the Pacific through Goletas Channel past Mexicana Point and so back to Nootka after filling many empty spaces on the chart with their own and other Spanish names.

Nootka was occupied by the Spaniards and the fortifications were manned in 1793, 1794 and 1795, but no further voyages of discovery were undertaken. The details and procedures which Quadra and Vancouver had agreed to disagree about were finally settled in 1795 by the British and Spanish governments. By then the latter had doubtless reached the conclusion that they could not compete with other nations in the Northwest Pacific and that they would be wise to implement the Nootka Convention gracefully. During the summer of 1795, the Spanish Commandant in Nootka was Brigadier Alava. He turned over the fort to Lieut. Pearce, Royal Marines, and thus ended Spanish occupancy of the area.

Maps and charts of coastal British Columbia and Alaska take on new meaning when the background of the old names is known. There is a special interest in the history of the Spanish names because of the unusual circumstances under which they were given and because of the aura that always attaches to original discovery. While Mexico and Spain seem far away in a different world of time, the sea and its ships continue as a changeless link between the years. Brave sailors are the same whatever their century and whatever their nationality.

The Spanish ship Atrevida *under the command of Alexandro Malaspina on the north-west coast in 1791. From E. O. S. Scholefield,* British Columbia From The Earliest Times To The Present, *Vancouver, 1913.*



Spanish Voyages of Discovery to the Northwest Pacific

Over a hundred names remain permanently on the chart as a memorial to these explorations. Ships frequently had two names, one secular and one with a religious flavour.

DATE	CAPTAIN	SHIP	REMARKS
1588	Lorenzo Ferrer Maldonado	?	This claim to have discovered the Strait of Anian connecting the Atlantic with the Pacific is of historic interest only — it cannot be substantiated.
1592	Juan de Fuca	Unnamed caravel and pinnace	There is great controversy whether this voyage ever took place but the Strait of Juan de Fuca commemorates the mariner.
1640	Admiral Pedro Bartolomé de Fonte	*Espíritu Santo* & 3 other vessels	He claimed to have discovered the Strait of Anian but neglected to record where it was located. However, 150 years later, mariners were still trying to locate his Rio de Reyes in Alaska or British Columbia.
1774	Juan Pérez	The frigate *Santiago* or *Nueva España*	He went from San Blas to approximately 55° N. in Alaskan waters sailed, by the Queen Charlotte Is. anchored off Estevan Point and returned to San Blas, Mexico.
1775	Juan Francisco de la Bodega y Quadra	The schooner *Sonora* or *Felicidad*	He sailed from San Blas to Alaskan waters, almost reaching 58° N. in his 36 foot craft, and returned safely in the autumn.
1779	Ignacio Arteaga J. F. de la Bodega y Quadra	The frigate *Princesa* or *Rosario* The frigate *Favorita* or *Nuestra Señora de los Remedios*	These two ships went in company from San Blas to Alaskan waters as far as 61° N. and returned disappointed at their failure to find any northwest passage.
1788	Esteban José Martínez González Lopez de Haro	The frigate *Princesa* or *Concepción* The snow *San Carlos* or *Filipino*	This expedition went from San Blas to 60° N. seeking Russian establishments in Alaska and returned.
1789	Martínez Haro	The frigate *Princesa* The snow *San Carlos*	From San Blas the two ships went to Nootka, where a fort was built and British fur traders were seized. From these events arose the Nootka incident which nearly brought Britain and Spain to war.
1790	Francisco Eliza	The frigate *Princesa*	He led a three ship expedition from San Blas to Nootka where he remained as Governor.
	Salvador Fidalgo	The snow *San Carlos*	During the summer he went up to Prince William Sound and Cook's River; then he returned to Nootka.
	Manuel Quimper	The sloop *Princesa Real*	Made the first survey of Esquimalt and explored the vicinity of Victoria and the adjacent Gulf Islands.
1791	Alejandro Malaspina	The corvettes *Descubierta & Atrevida*	During his world cruise Malaspina was in Nootka and went up to Alaska. He is reported to have visited several Vancouver Island centres including Nanaimo. Does not mention Nanaimo or Las Bocas de Winthuyssen, to use the Spanish name.
	F. Eliza Jose María Narváez	The snow *San Carlos* The schooner *Saturnina* or *Horcasitas*	This expedition went through Haro Strait as far as Cape Lazo visiting Vancouver and Nanaimo among other places. Eliza appears to have been confused with Malaspina in some local circles.
1792	Jacinto Caamaño	The corvette *Aranzazu*	Sailed from Nootka to Bucareli, Alaska, and south along the coast in an extensive survey.
	Dionisio Alcalá Galiano Cayetano Valdés	The schooner *Sutil* The schooner *Mexicana*	These two 50 foot schooners came to Nootka from San Blas, circumnavigated Vancouver Island in company, having met Capt. George Vancouver off Point Grey and sailed with him for several days, returned to Nootka and thence to San Blas. They were the first Europeans to sail around the Island.

Notes on The Early History of Vancouver Island and Vicinity

1. *Strait of Juan de Fuca:* It is now generally accepted that in 1592 a Greek mariner whose real name was Apostolos Valerianos, but who had adopted the Spanish name Juan de Fuca, sailed from Mexico in a small Spanish caravel and discovered the Strait which now bears his name.

2. *Estevan Point:* In 1774 Lt.-Commander Pérez, commanding the Spanish corvette *Santiago*, anchored off this point and traded with the Indians. He named it Punta San Esteban after his Second Lieutenant, Esteban José Martínez. This is the earliest recorded name given to any part of Vancouver Island by Europeans.

3. *Cape Flattery:* On 22nd March, 1778, Captain James Cook, R.N., in H.M.S. *Resolution* with H.M.S. *Discovery* in company, named Cape Flattery.

4. *Nootka Sound:* In 1778, Captain Cook anchored in Nootka Sound and established Britain's claim to the territory. The ship's company traded with the Indians and their profits, particularly from sea otter skins, aroused the interest of traders, with the result that a stream of merchant vessels returned in ensuing years to the area. In 1788 Captain John Meares acquired by trade a location ashore and built the first vessel constructed in the North West Pacific. This, the *North West America*, and four other British merchantmen, were seized in 1789 by the Spaniards under Martínez. This led to the famous "Nootka incident". Spain agreed to restore the ships and territory and Captain Vancouver was sent out to make the settlement.

5. *Haro Strait:* In May, 1790, Sub-Lieutenant Quimper sailed on a voyage from Nootka in the captured *Princess Royal*, on a voyage of exploration in the Strait of Juan de Fuca. He was the first white man to enter Esquimalt and Victoria Harbour, the former of which he named Puerto de Córdova. Of the many names that he gave, the most important ones remaining are Haro Strait, Lopez Island and Gonzales Point, all after his first mate, González López de Haro.

6. *San Juan Island and Saturna Island:* In 1791, Lt.-Commander Eliza in the *San Carlos*, and Lieutenant Narváez in the *Saturnina*, made another voyage of exploration. They proceeded up the Strait of Georgia as far as Cape Lazo. Among the names remaining from this voyage are San Juan Island, Saturna Island, Gabriola Island, Lasqueti Island, Texada Island and Cape Lazo.

7. *Places named by Captain George Vancouver, R.N.:* In 1792, Captain Vancouver in H.M.S. *Discovery*, with H.M.S. *Chatham* (Lt. W. R. Broughton) in company, came to Vancouver Island with instructions (a) to explore the coast with the hope of finding the Northwest Passage; and (b) to receive from the Spanish authorities the surrender of the area. During the summer months, he proceeded along the Strait of Juan de Fuca, and explored the waters around northern Washington and the mainland of British Columbia. For part of the summer, two little Spanish ships were in company (See Note 8). The more important names given by Vancouver are as follows:

- Mt. Rainier: after Admiral Rainier of the Royal Navy.
- Mt. Baker: after his 3rd Lieutenant.
- Puget Sound: after his 2nd Lieutenant.
- Whidbey Island: after the Master of the *Discovery*.
- Admiralty Inlet: after the British Admiralty.
- Birch Point and Bay: because of the trees.
- Point Roberts: after Captain Roberts, his predecessor in *Discovery*.
- Burrard Inlet, Point Grey and Pt. Atkinson: after naval friends.
- Gulf of Georgia: in honour of King George III. (Hydrographers have altered the name to "Strait".)
- Howe Sound and many of the places in it: after Lord Howe and officers or ships associated with him.
- Jarvis Inlet: after Sir John Jarvis, later Lord St. Vincent.
- Bute Inlet: after the Earl of Bute.
- Thurlow Islands: after Lord Chancellor Thurlow.
- Hardwicke Island: after the 3rd Earl of Hardwicke.
- Johnstone Strait: after the Master of *Chatham*.
- Broughton Strait: after the Commanding Officer of *Chatham*.
- Cape Mudge: after the 1st Lieutenant of *Discovery*.

The Spanish officer in charge of Nootka, and Captain Vancouver formed a warm friendship. In response to the former's request that something be named to perpetuate this friendship, Vancouver called the Island which he had just gone around "the Island of Quadra and Vancouver". Gradually, with the loss of Spanish influence in the area, the name was simplified.

8. *Places named by Galiano and Valdés:* Captain Vancouver reports in his Voyage of Discovery, that on 22nd June, 1792, in the vicinity of Point Grey, he met the Spanish brig *Sutil* under the command of Sr. Don Dionisio Galiano and the schooner *Mexicana* commanded by Sr. Don Cayetano Valdés, both holding the rank of Captain of Frigate. These little ships each about 45 tons, with a complement of one officer and 24 men, were continuing Spanish explorations. They sailed northward around Vancouver Island more or less at the same time as Vancouver. They are remembered principally by the following: Rosario Strait, Galiano Island, Valdes Island, Malaspina Strait, Cortez Island, Sutil Channel, Redonda Island, Goletas Channel and Mexicana Point.

9. *Esperanza Inlet:* This opening in

the coast line was originally named by Captain Cook in 1778 Hope Bay. The name was probably translated by the Spanish when they made out their charts and may be credited to Malaspina in 1791.

10. *Sea Otter Island:* In 1785 Captain James Hanna made the first British trading expedition to Nootka. The following year he returned in a 120 ton vessel appropriately named the *Sea Otter*. He named this group of islands and various other places along the coast.

11. *Cape Scott:* Named in 1786 after David Scott, a merchant of Bombay, who helped to pay for the second British trading expedition to Nootka.

12. *La Perouse Bay:* In 1786 France sent an expedition under La Pérouse to the northwest Pacific. He is remembered by the bay bearing his name.

13. *Barkley Sound:* In 1787 Captain C. W. Barkley arrived in the trading ship *Imperial Eagle*, formerly the *Loudon*. He had on board his bride, aged 17, who wrote a fascinating journal about the voyage. Cape Beale is named after the purser of the *Imperial Eagle*. It is interesting to note that Captain Barkley re-discovered the Strait of Juan de Fuca in 1787 and gave to it that name on his chart.

14. *Quatsino Sound, Kyuquot Sound, Clayoquot Sound:* These are all based on Indian names and date, although not necessarily in their present form, from the early trading days.

15. *Quadra Island:* Was so named by the Geographic Board of Canada in 1903, to perpetuate the name of Captain Quadra, Governor of Nootka.

16. *Knight Inlet:* This inlet was explored in 1792 by Lt. Broughton, Commanding Officer of *Chatham*, and named after Captain John Knight, R.N. In 1776, Lieut. Knight and Midshipman Broughton were taken prisoner in Cape Anne Harbour. They were exchanged in the same year. Knight Inlet, like many other places on the coast, was also given a name by the Spaniards, but in this case the Spanish name was lost and the English name survived.

17. *Victoria and Esquimalt:* In 1842 James Douglas was sent by the Hudson's Bay Company to find in the southern part of Vancouver Island, a harbour suitable for a company fort. He investigated Sooke, Esquimalt and Victoria, and chose the last named. After the company was established, the Royal Navy came north to protect British interests and to carry out further surveys. In 1846, the frigate *Fisgard*, the surveying vessel, *Herald*, and the surveying brig, *Pandora*, were in these waters. That year, Lt.-Commander James Wood, captain of *Pandora*, assisted by Mr. R. M. Inskip, naval instructor of H.M.S. *Fisgard* and his 14 midshipmen, made the first British survey of Esquimalt Harbour. At the same time, Captain Henry Kellett surveyed Victoria Harbour and adjacent waters. Kellett named Albert Head, because of its relation to Fort Victoria, and the anchorage between them Royal Roads. Wood chose the three parts of the consort's family name to designate Saxe Point, Coburg Peninsula and Gotha Point. Scroggs Rocks were named by Captain Kellett after Edward Scroggs, mate of the *Herald*. The principal features of Esquimalt Harbour were named by Wood after the *Fisgard* and her officers:

Fisgard Island: after the ship, a frigate of 1,069 tons, 42 guns.
Duntze Head: after the captain, J. A. Duntze, R.N., Commanding Officer of *Fisgard*.
Rodd Hill and Rodd Pt.: after the 1st Lieutenant.
Lang Cove: after the 4th Lieutenant.
Ashe Head: after the 5th Lieutenant.
Inskip Island: after the Naval Instructor.
Richard Island: after Lieutenant, Royal Marines.
Dyke Point: after the 2nd Lieutenant.
Cole Island: after the Master.
Paterson Point: after the 3rd Lieutenant.
McCarthy Island: after Lieutenant, Royal Marines.
Dunns Nook: after the surgeon.

Constance Cove was named by Lt.-Commander Wood for H.M.S. *Constance*, 50 guns, 2,125 tons, the first warship to use Esquimalt Harbour as an anchorage.

Plumper Bay was named in 1857 by Captain Richards, R.N., after the auxiliary steam sloop *Plumper*, which surveyed on this coast from November 1857 until January 1861.

Thetis Cove was named by Captain Richards in 1857 after the frigate *Thetis*, 36 guns, 1,450 tons.

Macaulay Point was originally called Sailor Point by Captain Kellett, in 1847. It was named Macaulay Point by the Hudson's Bay Company about 1851, after Donald Macaulay who was in charge of the Viewfield Farm of which the point formed part. The name was adopted by Captain Richards in 1899.

Discovery Island and Chatham Islands were named by Captain Kellett after the ships commanded by Vancouver and Broughton respectively.

EDITOR'S NOTE-BOOK

Captain the Reverend J. A. Davidson (*The Preposterous Fortress of the North*) is a minister in the United Church of Canada and a regular chaplain in the Canadian Army. He served as chaplain at Fort Churchill, Manitoba, from August, 1958, to July, 1960, and is at present the Protestant chaplain at the Royal Military College, Kingston.

* * * *

Peter Hendry (*Taming the Tides of Fundy*) is a Manitoban by birth. He has worked with newspapers in Saskatchewan, Winnipeg, Kingston, Toronto, and Montreal, and has done free-lance writing in both Canada and Europe, much of it devoted to agricultural topics. Now a resident of Montreal, he is on the staff of the national farm magazine, the *Family Herald*.

* * * *

Commander C. H. Little (*Spanish Explorations in British Columbia*), now retired from the Royal Canadian Navy, is an amateur historian of naval history. For two years he was chairman of the Maritime Museum of British Columbia at Esquimalt, and during that period became interested in the part played by the Spaniards in the exploration of British Columbia. Recently, he spent six months in Spain doing research at the Naval Museum in Madrid in preparation for his article. Commander Little has also written the article *Voyages of Discovery—British Columbia* published in April, 1958, issue of the *Canadian Geographical Journal*.

* * *

Sylvia Seeley (*Lebanon*) was educated at the University of London, specializing in English History and in French. She came to Canada to work for the former Canadian School of Prehistory in France, and did research work in the Dordogne (France), in Holland, Belgium, and later in South Africa for a short time. She has published many articles as a free-lance writer and is now librarian for the Royal Canadian Geographical Society.

AMONGST THE NEW BOOKS

Military Aspects of World Political Geography

edited by Herbert J. Vent

(Government Printing Office, Washington, D.C., 550 pp. $4.50)

Just a short while ago a few manuals published for the Reserve officers of the U.S. Air Force were receiving some unfavourable publicity. This work, however, will achieve warmer acclaim. It is aimed at informing the air officer about the rapidly changing world in which his responsibilities have recently acquired global scope.

General principles are outlined for the study of military geography, which is described as a synthesis of geographical, economic, political and psychological factors affecting a given state and its inhabitants. A section on maps (the geographer's tool), an analysis of writings on global strategy and a brief study of climate follow. There is also a study of the geographic, technological and institutional factors that influence the power of states. For instance, the United States suffers from a strategic shortage of wool and a traditional lack of pre-eminence in pure science.

Regional studies, in which the factors are examined, make up the bulk of the book. The subdivisions into regions are of interest: Canada and the U.S.A. are grouped as "Anglo-America" where ". . . a high degree of unity has been developed in the use of a common language and in the acceptance of a single religion . . . [it is] more completely a racial, linguistic and religious unit than any other land division." Not only in nomenclature, but in its reflection of today's power groupings and new strategic importances is the book timely and intriguing. The U.S.S.R. with its satellites (the latter grouped as "Eastern Europe") occupy a central position, of course, and there is a detailed study of the Arctic region. "Western Europe" includes perforce a detached Greece, and Turkey is grouped as "Middle East". India is lumped with "Southern Asia" and there are sections on "Communist China" and on "Japan, Taiwan and Korea". The remaining subdivisions are orthodox. Antarctica is dealt with and there is an indication of a possible strategic role in its command of the wide straits toward Capes Horn and Good Hope. The regional studies are thorough. Since the work appeared, however, there have been many major political changes, particularly in Africa.

Because of the multiplicity of authors, the regional studies vary. In a few instances geographer's jargon

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creeps in. On the whole, the writing is careful, fair, frank and clear. The many maps are good. They are not altogether integrated to the text, however; this could have been done. Coverage is not even, either. Many well-reproduced photographs illustrate the work. This book reflects the serious attention that is being given to professional training in the Air Force of the U.S.A.

C. C. J. BOND

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* * *

The World's Metropolitan Areas
Edited by Kingsley Davis
University of California Press, Berkeley, Calif. 115 pp. $3.00.

Is Tokyo really larger than New York? What constitutes the "urban aggregate" in underbounded, overbounded and truebounded cities? Are international comparisons of urban phenomena possible?

The World's Metropolitan Areas attempts to answer these and other questions in the field of urban phenomena through comparative study of territorial extent and population. It is one of the first efforts toward the evaluation of basic data and the

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clarification of methodological issues.

As far back as 1954, the Pan American Institute of Geography and History had established a work group on urban geography and by late 1957 had formulated a forty-five page document entitled *Project of Minimum Statistics of Urban Geography* for the Continental Census of 1960. In a move to attract interest and stimulate constructive criticism in minimum statistics for census purposes, copies of the project were freely distributed. Canadian geographers were asked to participate as well as the International Urban Research (IUR) group at the University of California (Berkeley), which was already well established in a Ford Foundation grant for studies on urban aggregates. This concise and timely result of their endeavours is a valuable contribution toward the quest for definitive minimum statistics and should prove of scientific interest not only to geographers, but to historians, economists, sociologists, demographers, ecologists, statisticians, political scientists and municipal administrators as well.

The central theme of IUR's study lies in the delimitation of urban aggregates discussed at both theoretical and practical levels. A delimitation of Metropolitan Area (M.A.) or Standard Metropolitan Area (S.M.A.), as advocated by the United States Bureau of Census may work very well in census determinations within that country but might be entirely unsuited for application within another. Thus, there must be a modified concept of the S.M.A. when used in international comparisons.

There are twenty-six pages of tables listing demarcated M.A.'s of more than 100,000 inhabitants and for twenty-one countries where demarcation was impossible, cities with corresponding populations are arranged alphabetically. Populations are enumerated as of the last census before 1954 and the estimated populations as of 1955. The appendix gives for each country in the table, the component units of each M.A. delimited in the study and the sources of population data. While the study is not represented as the last word on metropolitan areas by IUR's frank admission, it is a solid step forward and remains open for suggested improvement.

S. C. Wiley

Dr. Wiley is in charge of the Foreign Areas Branch of the Geographical Division, Department of Mines and Technical Surveys, Ottawa.

Mélanges géographiques canadiens
offerts à
Raoul Blanchard
Cahiers de Géographie de Québec
Numéro Spécial (Avril-Sept. 1959)
(Laval University Press, Quebec.
494 pp. $7.50).

The *Institut de Géographie de l'Université Laval* and particularly its Director, Louis-Edmond Hamelin, are to be congratulated for having taken the initiative to offer *Les Mélanges Géographiques Canadiens* as a tribute to Raoul Blanchard. This token of gratitude, as Dr. Hamelin states in the foreword, was the least French Canada could do to thank the one person most responsible for "projecting" French Geography in North America. The *Bibliographie de Raoul Blanchard* lists no less than 27 works on Canadian Geography.

This 494 page special edition of the *Cahiers de Géographie de Québec* was designed to reflect the status of Canadian Geography to-day. Eighty percent of the articles deal with various aspects of this theme. The 40 contributing authors represent five groups:

1. French geographers who in the last ten years have been invited to lecture in Quebec universities,
2. French-Canadian Geographers who studied in France,
3. Geographers who do most of their research in the geography of Quebec,
4. Anglo-Canadian and American geographers,
5. Historians, geologists, etc.

The technical qualities of this special edition of the *Cahiers* are to be praised. The layout, the typography, the reproduction of diagrams, the photographs, and maps are all of a high technical standard, with the possible exception of the outdated base maps used by Mr. Corbel in his article entitled *Les Alpes Inuitiennes*.

There are some outstanding articles in the *Mélanges*. Among those deserving special mention is a particularly well written paper by Jacques Rousseau on the cartographic history of the Otish mountains; Dr. Rousseau is not only a scientist, but also, quite obviously, a poet. P. Dagenais and B. Brouillette's papers are excellent studies which are a must for anyone interested in the geography of Quebec.

Yet the book has its shortcomings. If it is to reflect truly Canadian Geography to-day, it is the feeling of this writer that more attention should have been given to the Canadian Arctic. The only article dealing with the Arctic is a weak contribution by Corbel entitled *Les Alpes Inuitiennes* in which he extends Flint's limit of Pleistocene glaciation north-west to

include the Queen Elizabeth Islands. There is no evidence to substantiate such an assumption, as none of the scientists working in the area has produced conclusive evidence that the Queen Elizabeth Islands were overridden by the Pleistocene continental glaciation. The use of the name *Alpes Inuitiennes* is also an unhappy choice. The term *inuitienne* is applied by the Geological Survey of Canada to the folded belts of the eastern and southern border of the Queen Elizabeth Islands, but not to the mountains of crystalline rocks that are found to the southeast.

Obviously a review such as this cannot hope to examine each paper in detail. It is sufficient to say that most papers maintain a high standard, and that the *Mélanges géographiques canadiens* is a valuable contribution to Canadian Geography. D. St-Onge

Mr. St-Onge works in the Geographical Branch of the Department of Mines and Technical Surveys at Ottawa.

* * *

Arabian Sands
by Wilfred Thesiger
(Longmans Green and Co., Toronto, 326 pp. $7.00)

In most "underdeveloped" communities of the world today, technological aspirations plus ideological tensions have discouraged the old-style unofficial explorer, the traveller *pur sang* with curiosity his only motive and self-confidence his only real protection. Discouraged — yet not eliminated, as this unusual book testifies. It is true that the author did not make the tough and dangerous camel-crossings of the Rub al Khali in the late 1940s in a wholly unofficial capacity; he stretched the sponsorship of the Anti-Locust Research Centre for the purpose; but he makes no bones about the fact that his real interest was in the way of life of the Bedu, not the locusts. Wilfred Thesiger is that rare type who can merge himself into an alien culture, who does not innocently or arrogantly equate underdevelopment with moral inferiority, who comes with humility to learn, and in learning finds love. He evidently had no thought of reward or renown on his return to his own civilization, because in spite of the urgings of his friends, he showed great reluctance to commit his experiences to paper, and as lately as 1957 St. John Philby, doyen of English Arabists, opined that this book "is perhaps never likely to materialize". Well, Philby was wrong, and I am sure he rejoices in his error.

The Rub al Khali is the "Empty Quarter" of southern Arabia, a territory as big as Ontario that is almost entirely desert of the harshest kind. Until the 1950s very few people, either Arab or foreign, had ventured into its interior, but in that decade the oilman came, and the place is changing now, and the lives of the Bedu who wander its periphery are changing too. Thus Thesiger was the last of the few, and his account is valuable for that reason alone.

Dressed in Arab costume, he travelled the long parching miles with a few Bedu for company, and he came to feel at one with them, and they in turn accepted the infidel as worthy of their comradeship, and they called him, fondly, Umbarak. These hardy but sensitive people live very much as their forefathers did in Biblical times; they know little and care less about the world beyond their physical vision, and the only material thing they have acquired from that world is the rifle, which, however, is now as integral to their existence as the camel and the water-skin.

Thesiger's story of his travels brings out the very feel of the Empty Quarter as well as its fascination and its challenge. This book is well written, handsomely produced, and excellently illustrated with photographs and maps. N. T. Gridgeman

Mr. Gridgeman is a statistician in the Applied Biology Division of the National Research Council at Ottawa.

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